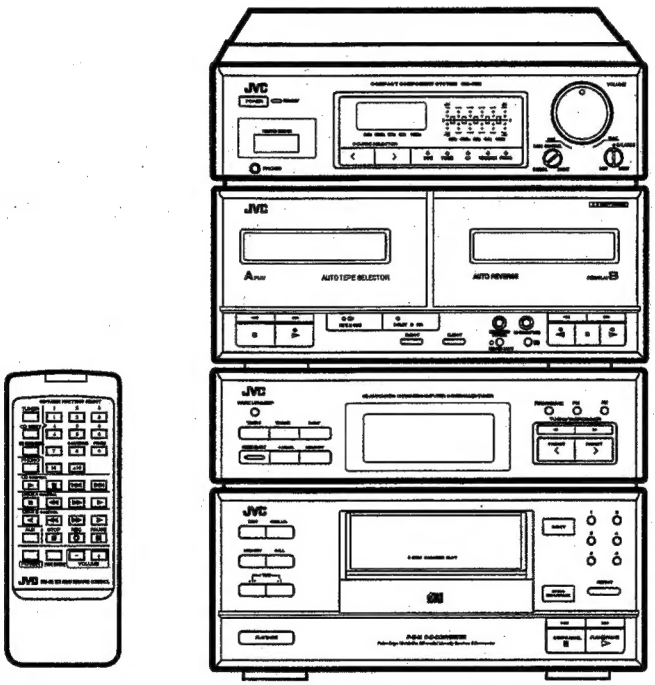
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

CA-MX55MBK



COMPACT disc DIGITAL AUDIO

For the explanation of ICs, the disassembly and the adjustment procedures, we issued the following service manuals.
Please use the manuals with this one when servicing.

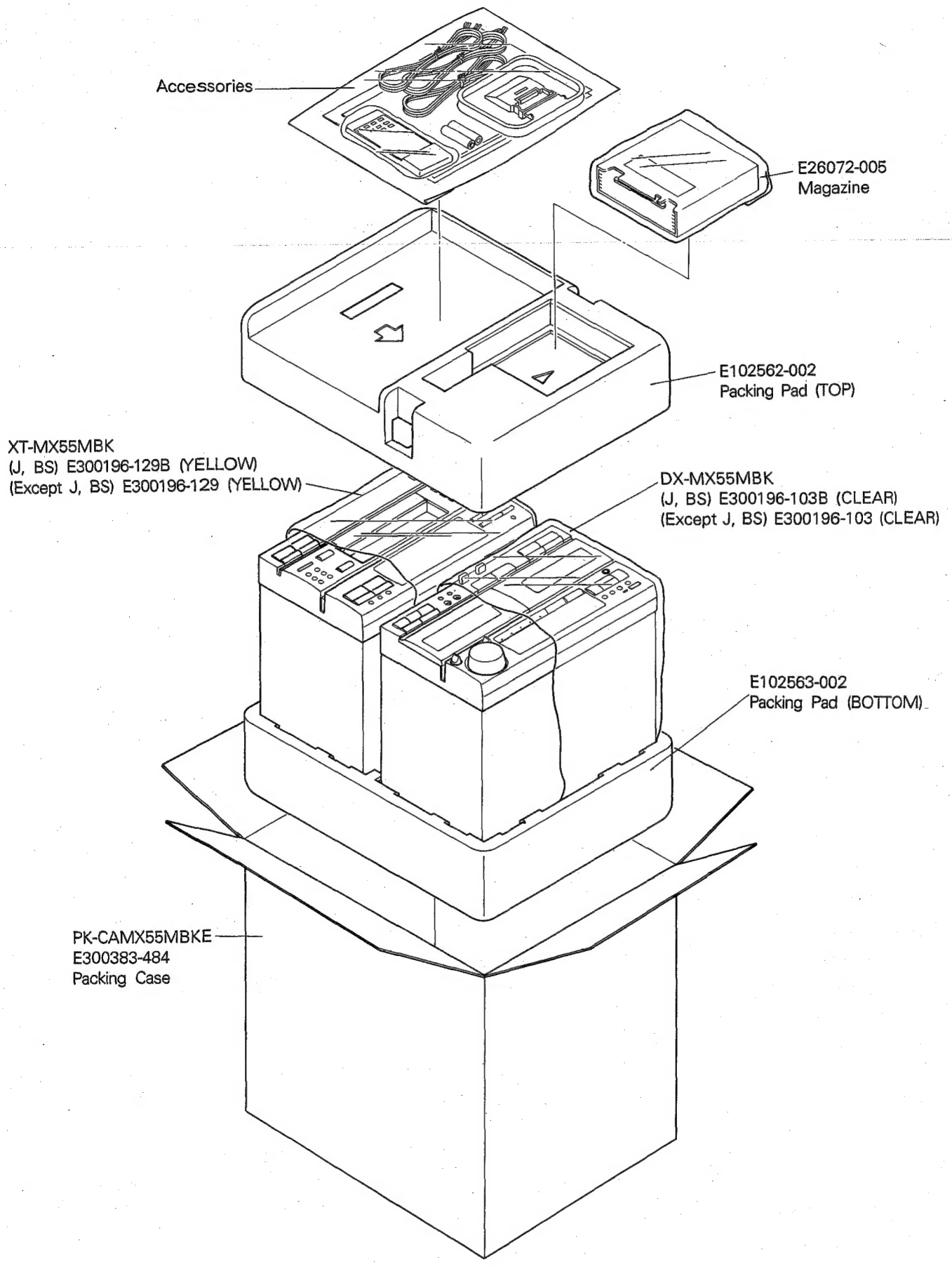
Component

Compact component (CA-MX55MBK) is a unit composing of the following units.

Model No.	Unit No.	Service Manual No.
CA-MX55MBK	DX-MX55MBK (Deck/Amplifier)	20343
	XT-MX55MBK (CD/Tuner)	20344

No. 20342
Mar. 1992

Packing Materials and Part Numbers



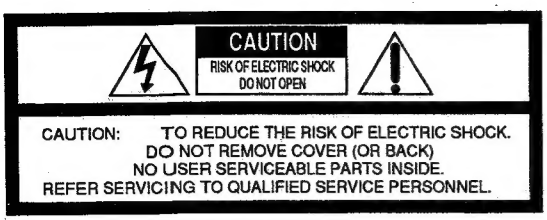
■ Accessories List

⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1845A	Instruction Book	1		J
	E30580-1846A	Instruction Book	1		C,EF,G,GI
	E30580-1847A	Instruction Book	1		U
	E30580-1848A	Instruction Book	1		A
	E30580-1848ABS	Instruction Book	1		BS
	E30580-1849A	Instruction Book	1		EN
	E30580-1850A	Instruciton Book	1		VX
	BT-20044G	Safety Information Sheet	1		J
	BT20071A	SVC Center List	1		C
	BT-20122-1	LTD Sticker	1		A
	BT20066A	Agency	1		BS
	E43486-340A	Safety Sheet	1		BS
	QZL1008-001	FTZ Information Sheet	1		G
	EMZ2001-012	Adapter	1		EN,EF,BS,GI,VX
	RM-SEMX55MU	Remote Control Unit	1		
	R03BPA-2STSA	Battery	1		J,C
	UM-4NJ-2PSA	Battery	1		Except J,C
	EWP502-005K	Built in Antenna	1		Except G
	E67007-001	Wire Antenna	1		G
	EWP103-009U	Speaker Cord Ass'y	2		
	EQB4001-015	AM Loop Antenna	1		
⚠	E04056	Simens Plug	1		U
	QPGA025-03505	Envelope	1		Except J,BS
	QPGA025-03505B	Envelope	1		J,BS

⚠ : Safety Parts

★The Marks Designated Areas

C ····· Canada
J ····· the U.S.A.
VX ····· Eastern Europe
G ····· Germany
A ····· Australia
BS ····· the U.K.
EF ····· Europe
EN ····· Scandinavia
U ····· Universal Type
No marks indicates all areas.



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

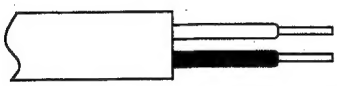
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT (In the United Kingdom) Mains Supply (AC 240V ∿ , 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:



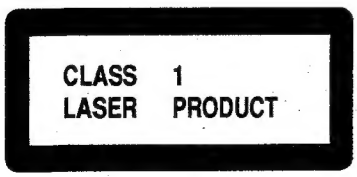
Blue to N (Neutral) or Black
Brown to L (Live) or Red

If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

THIS UNIT IS PRODUCED TO COMPLY WITH DIRECTIVE 76/889 EEC.

IMPORTANT FOR LASER PRODUCTS
REPRODUCTION OF LABELS

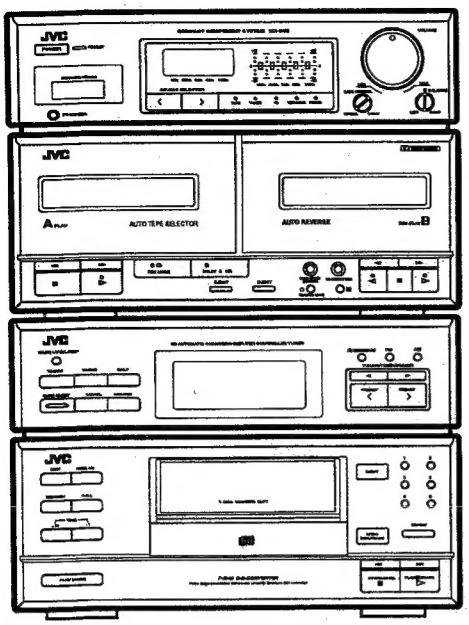
① CLASSIFICATION LABEL, PLACED ON REAR ENCLOSURE
(Except for the U.S.A. and Canada)



1. CLASS 1 LASER PRODUCT
2. **DANGER:** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION:** Do not open the top cover. There are no user serviceable parts inside the unit; leave all servicing to qualified service personnel.

② WARNING LABEL, PLACED INSIDE THE UNIT
(Except for the U.S.A.)

DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)	**VARNING:** Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)
ADVARSEL: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling (d)	**VARO:** Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)



CAUTION

To reduce the risk of electrical shocks, fire, etc.:

1. Do not remove screws, covers or cabinet.
2. Do not expose this appliance to rain or moisture.

Thank you for purchasing thus JVC Compact Component Stereo System. We hope it will be valued addition to your home, giving you years of enjoyment.

Be sure to read this instruction manual carefully before operating your new stereo system. Here you will find all the information you need to set up and use the system.

For questions that cannot be answered in the manual, please contact your dealer.

IMPORTANT CAUTIONS

1. **Installation of the unit**
- Select a place which is level, dry and neither too hot nor too cold (between 5°C and 35°C).
- Leave sufficient distance between it and your TV.
- Do not use it in a place subject to vibrations.

2. **Power cord**
- Do not handle the power cord with wet hands!
- When unplugging from the wall outlet, always pull the plug, not the power cord.

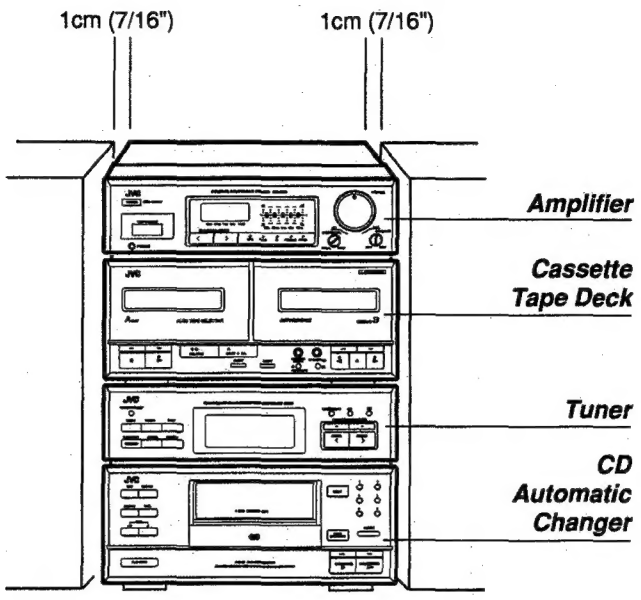
3. **Malfunctions, etc.**
- There are no user serviceable parts inside. If anything goes wrong, unplug the power cord and consult your dealer.
- Do not insert any metallic object into the receiver.

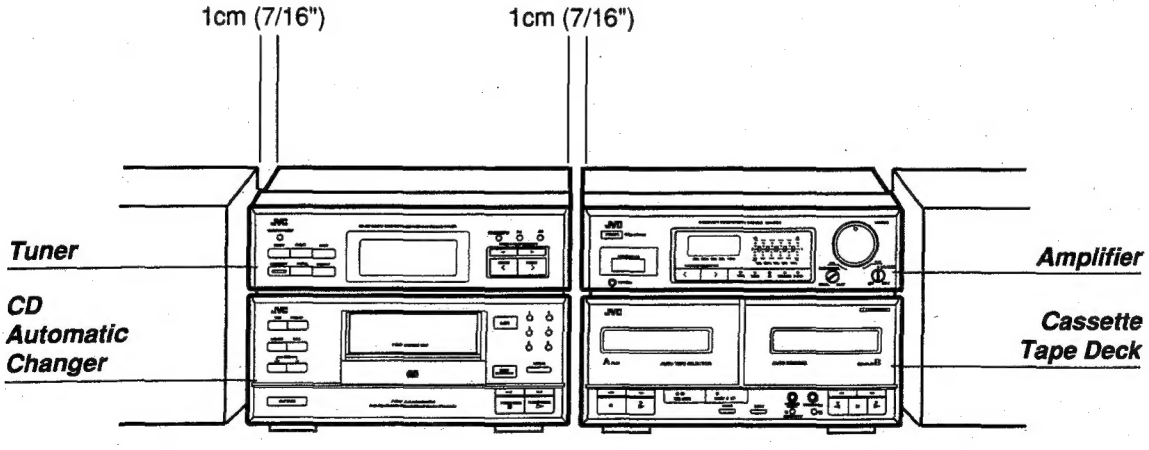
Table of Contents

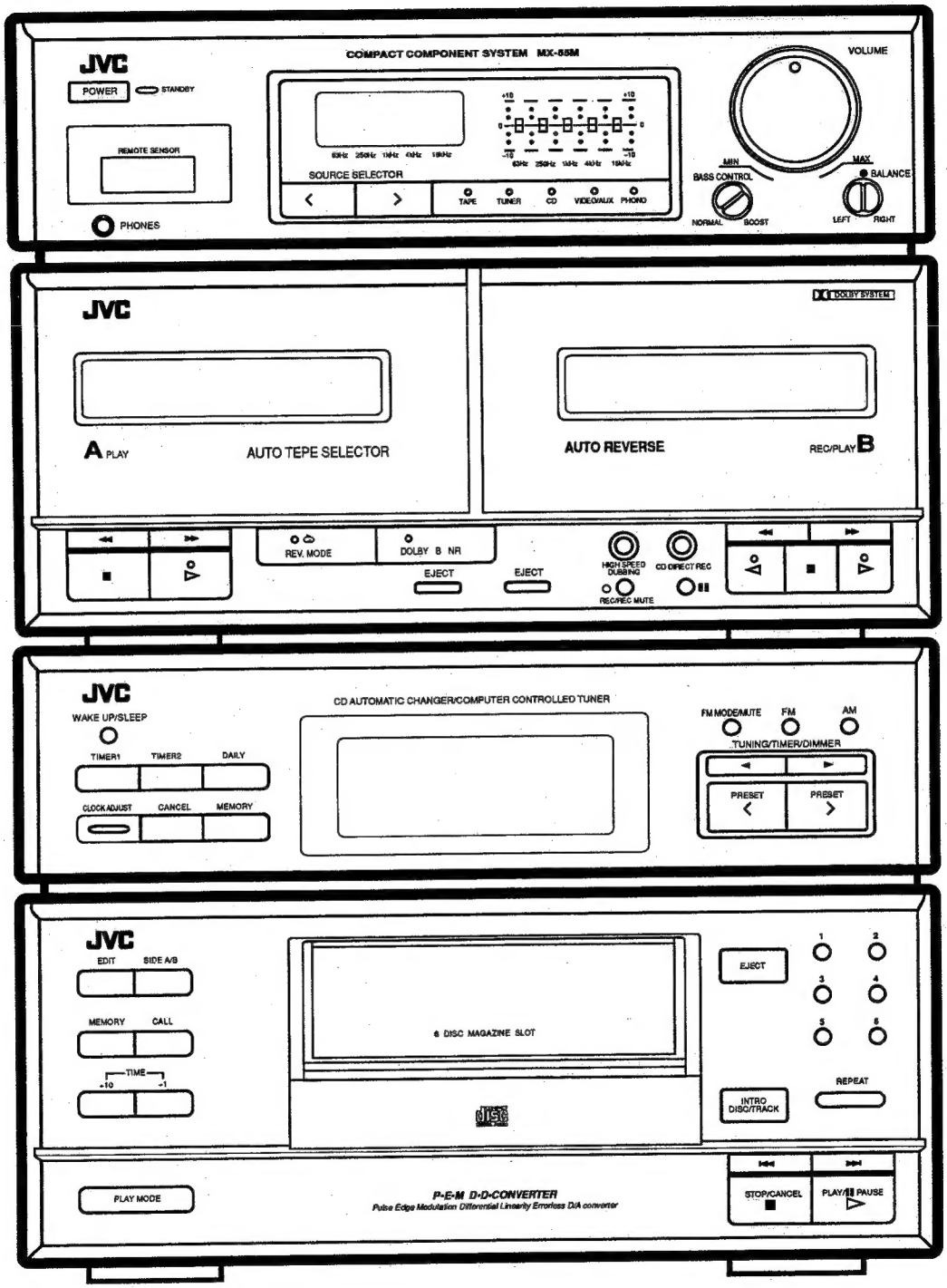
Laying Out the System

There are two ways to lay out the system as shown below:

- Leave a space of at least one cm on both sides of the amplifier and keep the back at least 10 cm from the wall for ventilation.
- If the system does not work well or needs repairing, please take all the components with you to the nearest agent.

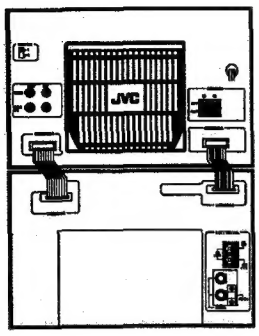


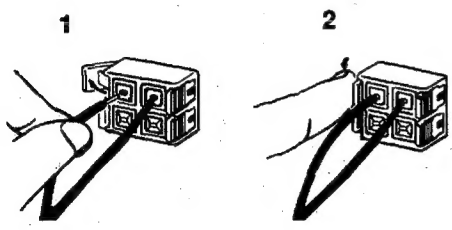


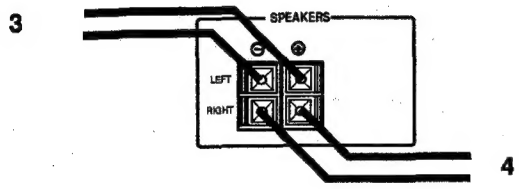

JVC
POWER
STANDBY
REMOTE SENSOR
PHONES
COMPACT COMPONENT SYSTEM MX-55M
SOURCE SELECTOR
TAPE
TUNER
CD
VIDEO/AUX
PHONO
VOLUME
MIN
MAX
BASS CONTROL
NORMAL
BOOST
BALANCE
LEFT
RIGHT
Amplifier
JVC
DOLBY SYSTEM
A PLAY
AUTO TEPE SELECTOR
AUTO REVERSE
REC/PLAY B
REV. MODE
DOLBY B NR
EJECT
EJECT
HIGH SPEED DUBBING
REC/PEC MUTE
CD DIRECT REC
Cassette Tape Deck
JVC
WAKE UP/SLEEP
TIMER1
TIMER2
DAILY
CLOCK ADJUST
CANCEL
MEMORY
CD AUTOMATIC CHANGER/COMPUTER CONTROLLED TUNER
FM MODE/MUTE
FM
AM
TUNING/TIMER/DIMMER
PRESET
PRESET
Tuner
JVC
EDIT
SIDE A/B
MEMORY
CALL
TIME
+10
-1
6 DISC MAGAZINE SLOT
EJECT
1
2
3
4
5
6
REPEAT
INTRO DISC/TRACK
PLAY MODE
P-E-M D-D-CONVERTER
Pulse Edge Modulation Differential Linearity Errorless D/A converter
STOP/CANCEL
PLAY/PAUSE
CD Automatic Changer

Getting Started

Connecting the System Components







Connection Notes

- Before you plug in the system, you must make all the necessary connections.

Connecting the Two stereo Components

- Connect the Amplifier/Tape Deck component and the Tuner/CD Automatic Changer component.

Connect the two ribbon cables (CONNECTOR A and B) from Tuner/CD Automatic Changer component to the Amplifier/Tape Deck component.

Connecting The Speakers

Speaker Terminals
Connect the speakers to the Amplifier/Tape Deck components as follows:

1. **When connecting speakers, open each terminal and insert the end of the speaker wire as shown.**
2. **Close the terminals as shown to clamp the speaker wires in place.**

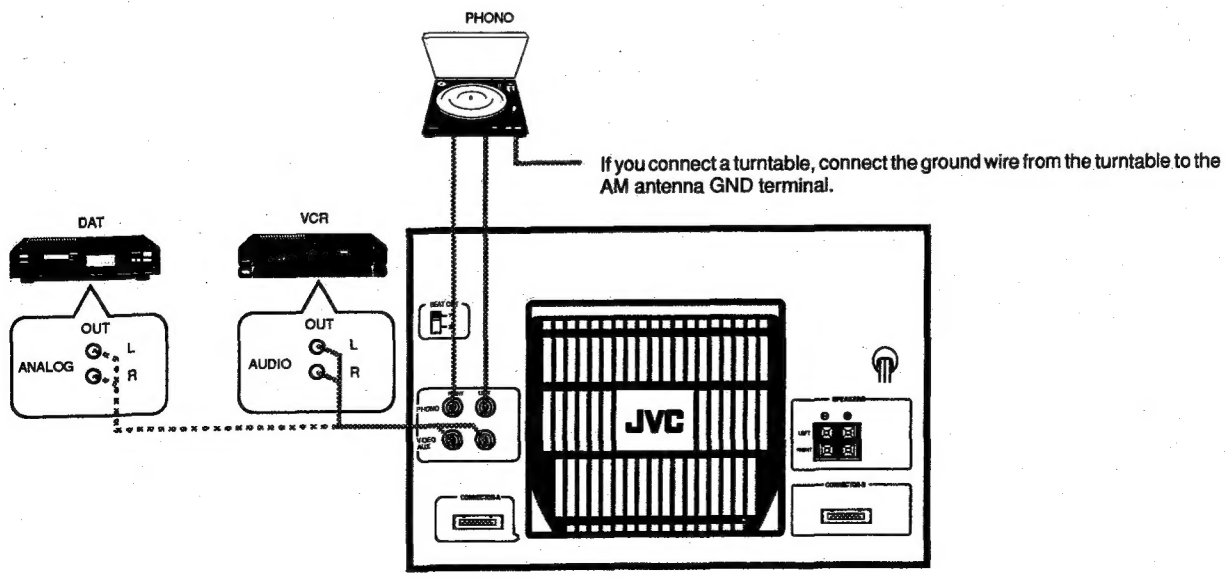
SPEAKERS
Connect the Speakers to the SPEAKERS terminal on the Amplifier/Tape Deck as follows.

3. **Connect the (+) and (–) terminals of the right-side Speaker to the (+) and (–) terminals marked RIGHT on the Amplifier/Tape Deck.**
4. **Connect the (+) and (–) terminals of the left-side Speaker to the (+) and (–) terminals marked LEFT on the Amplifier/Tape Deck.**

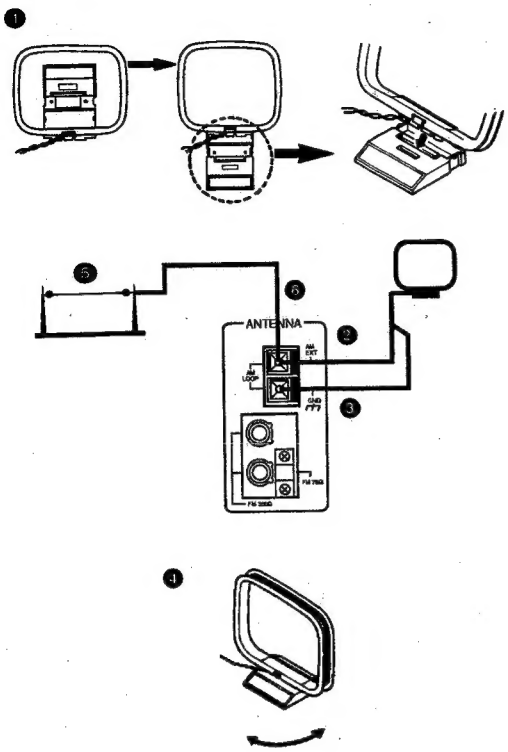
- Using speakers with the correct impedance. The correct impedance is indicated on the rear panel.

Connecting Other Components

The amplifier can also be connected to a Turntable (PHONO), a Video Cassette Recorder (VCR) and a Digital Audio Tape (DAT) Deck.



AM Antenna Connections



AM Loop Antenna

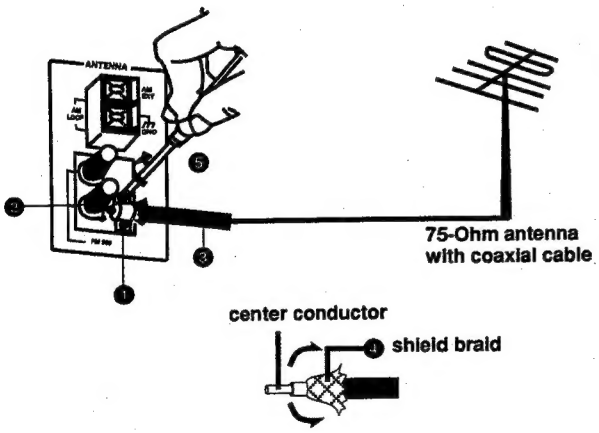
1. **Fold out the loop from the antenna base.**
2. **Connect one antenna wire to one of the AM LOOP terminals.**
3. **Connect the remaining antenna wire to the other AM LOOP terminal.**
   Note: These two terminals open and close the same way as the speaker terminals.
4. **Adjust the loop antenna as needed to get the best reception.**

AM Outdoor Antenna

If your AM broadcast reception is unsatisfactory, you should connect an AM outdoor antenna in addition to the loop antenna.
Important! The AM loop antenna must be installed to receive AM broadcasts. Do not disconnect the loop antenna when installing an outdoor antenna.

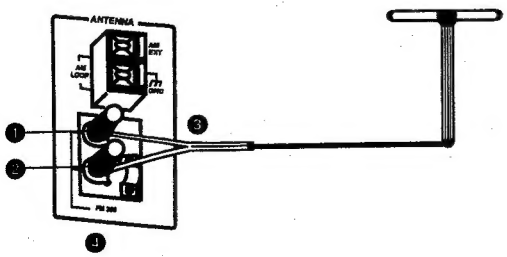
5. **Install a single vinyl-covered antenna wire outdoors. The antenna wire should be about 16 to 40 feet (5 to 12 meters) long.**
6. **Connect one end of the antenna to the AM loop terminal marked AM EXT.**
   Note: Except for the connection, make sure that no uninsulated antenna wire touches the rear panel. Otherwise, you might not receive AM broadcasts.

FM Antenna Connections



FM 75-Ohm Antenna Cable

1. **Loosen the screws holding the bracket.**
2. **Loosen the cap of the 300/75-ohm terminal.**
3. **Insert the round antenna cable through the bracket from below.**
4. **Make sure that the shield braid on the cable contacts the 300/75-ohm terminal.**
5. **Tighten the bracket screws and the cap on the 300/75-ohm terminal.**



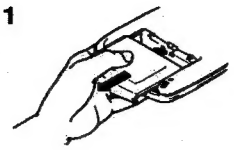
FM 300-Ohm Antenna Cable

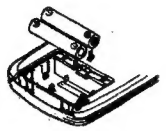
1. **Loosen the cap on the 300/75-ohm terminal.**
2. **Loosen the cap on the 300-ohm terminal.**
3. **Connect the two conductors of the antenna cable to the 300/75-ohm terminal and the 300-ohm terminal.**
4. **Tighten the caps on both terminals.**
   Note: Whether you use the 75-ohm or 300-ohm cable, make sure the antenna conductors do not touch any other terminals on the rear panel. This could cause poor reception.

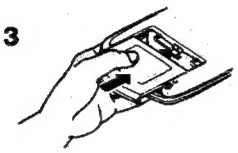
Note:

- Make sure the antenna conductors do not touch any other terminals, connecting cords and power cord on the system.
  This could cause poor reception.

Installing Batteries in the Remote Controller

1


2


3


1. **Remove the battery compartment lid.**
   Press the lid and slide it in the direction of the arrow.

2. **Insert the batteries.**
   Use two UM-4/AAA (24F)/R03 size batteries.
   Make sure the + and – polarities on the batteries and compartment are the same.

3. **Attach the lid.**
   Press the lid and slide it in the direction of the arrow.

Note:

- Batteries installed incorrectly may burst of leak. Pay attention to the following:
  - When the Remote Controller is not in use for a long period of time, remove the batteries.
  - Do not mix old and new batteries.
  - Do no mix batteries of different types, even if their shapes are the same.
  - When batteries become weak, the operating distance of the Remote Controller is greatly reduced and you will need to replace the batteries.

AC power connection

Caution: To prevent electric shock, turn all stereo components off before you install or remove power cords.

Important! Before you plug the power cord into an outlet, make sure that all stereo components are connected correctly.

Using the Amplifier

Using the Power Switch

1. **Press the POWER switch to turn on the stereo system.**
   When the POWER switch is not pressed and the power cord is plugged in, the stereo is in STANDBY mode and STANDBY indicator lights. In STANDBY mode, the stereo uses a small amount of power (10 watts) for the clock, memory contents, and any timers which are set.
2. **To disconnect power completely, unplug the power cord.**

Adjusting the Volume controls

Volume
Turn the VOLUME knob to adjust the volume level of the speakers or headphones.

- Connect headphones to the PHONES jack on the amplifier for listening through headphones. No sound will be produced from the speakers.

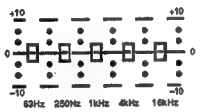
Important! There is danger of your hearing being affected if you listen to your sound system at an excessively high volume level. You must be especially aware of this danger when using headphones.

Balance
Turn the BALANCE knob to adjust the left-and-right sound balance in the speakers or headphones.

Bass Control
Turn the BASS CONTROL knob to adjust the output level of the low frequencies.
Turning this control toward BOOST will boost the low frequencies.

Using the SEA Graphic Equalizer

By adjusting the frequency levels in the five available frequency ranges you can create your own sound.



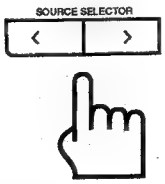
Recording with the SEA Graphic Equalizer

The SEA setting for a source such as CD will be reproduced when the source material is recorded.
This SEA effect can be eliminated by setting all the SEA control slides at zero.

When the slide lever controls on the SEA Graphic Equalizer are moved in the direction of the plus the sound range will increase. The range will decrease when the levers are moved in the direction of the minus.

Selecting the Source

Select the SOURCE you want to listen to with SOURCE SELECTOR button.



- Each time you press the SOURCE SELECTOR button, the source changes to the next one in the sequence, and the corresponding SOURCE indicator lights.

  ↔ TAPE ↔ TUNER ↔ CD ↔ VIDEO/AUX ↔ PHONO ↔

Using Turntable, VCR and DAT

In addition to the CD Automatic Changer, Tuner, and Cassette Tape Deck, the amplifier can also play a turntable, a VCR and a DAT.

1. **Turn the power for each piece of component ON.**
2. **To play a record, press the SOURCE SELECTOR button on the amplifier so that PHONO lights on the SOURCE indicator.**
   To use VCR or DAT, press the SOURCE SELECTOR button on the amplifier so that VIDEO/AUX lights on the SOURCE indicator.
3. **To operate the each component, refer to its instruction manual.**

- You can operate a JVC VCR using the remote controller.

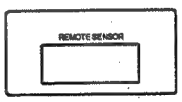
When VCR is connected, the sound is heard through the speakers.

Signal Level Indicator

The Signal Level Indicator shows the signal level of each frequency band separately.

Remote Sensor

Receives the signal from the supplied Remote Control unit.

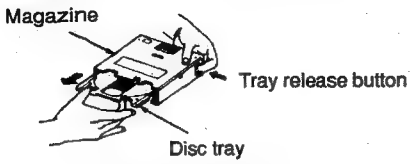


Using the CD Automatic Changer

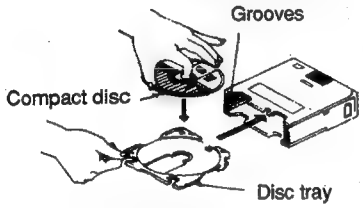
Installing the discs in the magazine

How to install the discs

1. **The discs trays in the magazine are removable.**
   Slide the disc tray out while simultaneously the tray release button.



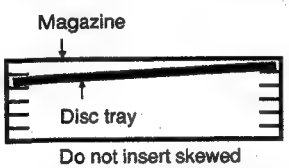
2. **Locate a disc on the disc tray with its label side up.**



3. **Line up the disc tray with the grooves in the magazine and push the disc tray right in.**
   It is unnecessary to press the tray release button when inserting the disc tray.

- If you wish to use 8 cm (3") CDs, please obtain the special magazine (XC-M73), designed for these.

Please note:
- Never bend the disc tray or force it into the magazine.
  A disc tray inserted skewed may cause a malfunction.



- The openings in the disc trays are for the passage of the laser signal. These openings leave a part of the shiny surface of the disc exposed. Please take care not to touch this shiny surface.
- It is not possible to play from the disc if it is located upside-down.
- Never place a disc directly in the magazine without using the disc tray.

Preliminary Operation

Up to six discs can be played by using the magazine.

Insert the magazine, discs installed in, in the MAGAZINE SLOT.
Push it gently until it clicks in place.

For the order in the magazine, the bottom disc tray is Disc No. 1, the disc tray above it is Disc No. 2, and the top disc tray is Disc No. 6.

To Stop Play

Press the STOP/CANCEL button on the CD Automatic Changer or Stop button on the Remote Controller.

Ejecting the MAGAZINE

Press the EJECT button on the CD Automatic Changer.

Continuous Play

In CONTINUOUS mode, you may play any of the selection of any disc, to the final track on DISC No. 6, continuously.

Press the PLAY MODE button and select the CONTINUOUS mode.
The CONTINUE indicator lights.

- When the power is switched on, control enters the CONTINUOUS mode.
- When you select CD with amplifier SOURCE SELECTOR, the CD Automatic Changer begins to play.

Note:
- When you press the PLAY MODE button and change the mode, set the CD Automatic Changer to the Stop mode. You cannot change the mode during playing.

To Play from the First Selection

Press the PLAY/PAUSE button on the CD Automatic Changer.

The discs are played in order from the first track on Disc No. 1 to the last track on Disc No. 6.

- If there is no CD on the disc tray or there is no disc tray, the CD on the next disc tray is played.

Stopping and Restarting Playback

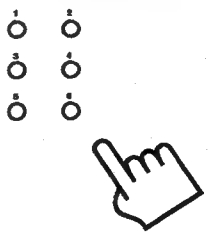
1. **Press the PLAY/PAUSE button on the CD Automatic Changer.**
   Playback stops temporarily.

Note:
- If you press the CD CONTROL ▶ button on the Remote Controller, the playback will not stop temporarily.

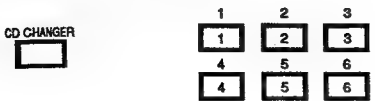
2. **Press the PLAY/PAUSE button again.**
   Playback restarts.

Selecting a Disc to Play

1. **Select the disc desired with the DISC button on the CD Automatic Changer.**



If you use the Remote Controller, press the CD CHANGER button, and specify the Disc No. with numeric keys 1 to 6.



- The discs are played in order from the first track on the CD with the selected disc No. to the last track on Disc No. 6.

Notes:
- If there is no CD on the disc tray or the disc No. with disc tray specified, the CD on the next disc tray will be played.
- The disc No. indicators go off if there is no CD on the disc tray and there is no disc tray. You cannot select any disc No. If the corresponding indicator is off.

Selecting a Track to Play

Use the ⏮ ⏭ button.

Scanning through track numbers (AUTO SEARCH)

Each time the ⏮ button is pressed, the track moves backward by one number.
Each time the ⏭ button is pressed, the track moves forward by one number.

- If you press the ⏮ or ⏭ button continuously while the CD Automatic Changer is in the stop mode, the track number will continue to move in the selected direction.
- If you press the ⏮ or ⏭ buttons while the CD Automatic Changer is in the pause mode, you will find the original track you selected. You can restart playback by pressing the PLAY/PAUSE button.

Searching for a specific part of a track (MANUAL SEARCH)

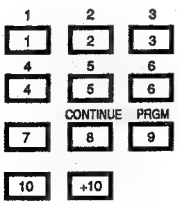
If you hold down the ⏮ button while the CD Automatic Changer is playing or has paused, fast rewinding will occur.
If you hold down the ⏭ button while the CD Automatic Changer is playing or has paused, fast forwarding will occur.

Notes:
- When the track number selected on a certain disc does not exist, play starts from the final selection on that disc.
- If there is no CD on the disc tray or you specify a track with the disc No. without a disc tray, the display Disc No. indicator will go off, and the CD on the next disc tray will be played.

Using the Remote Controller to Select a Track

There are two ways to search for a track with the remote cotroller:

Numeric keypad



AUTO SEARCH buttons ⏮ or ⏭

Using the Numeric Keypad

1. **Press the CD 10KEY button on the Remote Controller.**

2. **Enter the track's number with the numeric keys.**
- If the track you want to hear is the 8th track, press the 8 key.
- If the track you want to hear is the 15th track, press the +10 key and the 5 key.
- If the track you want to hear is the 20th track, press the +10 key and the 10 key.

Using the Auto Search Buttons

Press the Auto Search ⏮ or ⏭ button on the Remote Controller to scan through the track numbers.

Note:
- You cannot search manualy by holding down the ⏮ or ⏭ button on the Remote Controller.

Listening Repeatedly

Using the REPEAT button.

Each time you press the REPEAT button, the mode will change in the following order:

→ **REPEAT** → **REPEAT 1** → **OFF**→ (back to the beginning)

REPEAT
If all discs in the CD Automatic Changer and the last track are played, playing will be repeated from the first disc.
It will keep repeating until you cancel the repetition.

- If you select the REPEAT mode in the PROGRAM mode, all the programmed tracks will be played, and they will be repeated in the order programmed.

REPEAT 1
The current track will play to the end and then start over again. It will keep repeating until you cancel the repetition.

- If you select the REPEAT 1 mode in the PROGRAM mode, the selected track will be played repeatedly.

Cancelling Repetition
Press the REPEAT button and turn the REPEAT indicator off.
Each track will play till the end without repeating.

INTRO play

This function is useful to search for a disc or track in the CD Automatic Changer.

1. **Press the STOP/CANCEL button on the CD Automatic Changer or Stop button on the Remote controller.**

2. **Press the PLAY MODE button on the CD Automatic Changer or Remote Controller, and select the CONTINUOUS mode.**
The CONTINUE indicator lights.

3. **Press the CD Automatic Changer INTRO button and select the desired mode.**
Each time you press the INTRO button, the mode changes in the following order:

→ **DISC INTRO** → **INTRO** → **OFF**→ (back to the beginning)

DISC INTRO mode
Play the first track of each of the discs in the CD Automatic Changer from the disc on Disc No.1 to 6, for 15 seconds.

INTRO mode
Play the beginning of each track of the discs in the CD Automatic Changer from the disc on Disc No.1 to 6, for 15 seconds.

4. **Press the PLAY/PAUSE button on the CD Automatic Changer or Play button on the Remote Controller.**

- Each track will be played for 15 seconds in the mode you selected.

Notes:
- When you press the ⏮ or ⏭ button in the INTRO mode, this mode will be canceled, and tracks will be played as follows.
  If you press the ⏮ button, the currently selected track will be played from the beginning in the CONTINUOUS mode.
  If you press the ⏭ button, the track following the currently selected track is played in the CONTINUOUS mode.
  If you hold down the ⏮ or ⏭ button, the manual search function will be available, and you can have fast-rewind or fast-forward.
- If you press the Disc button on the CD Automatic Changer in the INTRO mode, or if you press the DISC button on the Remote Controller, then select a disc with numeric keys. This will cancel the INTRO mode, and tracks will be played in the CONTINUE mode, starting from the first track of the disc.
- If you press the CD 10KEY button on the Remote Controller, select a disc with numeric keys while playing in the INTRO mode, the INTRO mode will be canceled, and tracks will be played in the CONTINUE mode from that track.

To cancel the INTRO play

1. **Press the STOP/CANCEL button on the CD Automatic Changer or the Stop button on the Remote Controller.**

2. **Press the INTRO button and turn the indicator off.**

Note:
- If you press the STOP/CANCEL button on the CD Automatic Changer or the Stop button on the Remote Controller, and press the PLAY MODE button, the INTRO mode will be canceled, and the CONTINUOUS mode will change to the PROGRAM mode.

Programmed Play

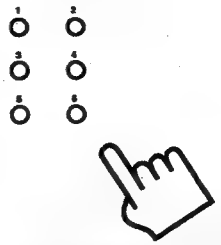
In PROGRAM mode 32 steps can be programmed to play in any desired order from the 6 discs loaded into the magazine.

Press the PLAY MODE button on the CD Automatic Changer.
If you use the Remote Controller, press the CD CHANGER button and then press the PRGM button.
The PROGRAM indicator lights.

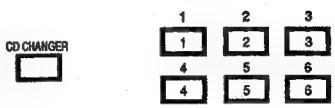
1. **Press the STOP/CANCEL button.**
   This puts the CD Automatic Changer in STOP mode.

2. **Press the PLAY MODE button on the CD Automatic Changer and select the PROGRAM mode.**
   The PROGRAM indicator lights.

3. **Press the DISC button and select a disc.**
   The AL indicator flashes on the display.



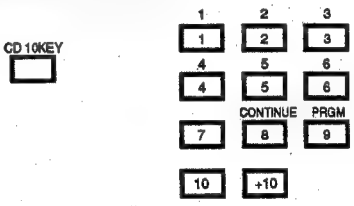
- If you use the Remote Controller, press the CD CHANGER button and then specify one of 1 to 6 with numeric keys.



- The AL indicator shows that all the tracks on the selected disc have been selected. If you press the MEMORY button while the AL indicator is flashing, all the tracks on the disc are programmed.

4. **Press the ⏮ or ⏭ button and select a track.**
   The step and the selected track flash on the display.

- If you use the Remote Controller, press the CD 10 KEY button, and then specify a track with numeric keys.

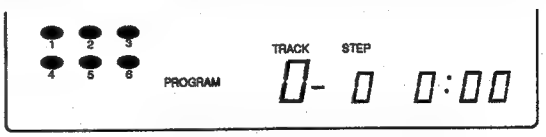


- Select a track while the AL indicator is flashing on the display.

5. **Press the MEMORY button on the CD Automatic Changer. The step and the selected track will light on the display.**
   The CD Automatic Changer will wait for selection of the next track.

6. **Select a track by repeating steps 3 to 5.**

- You can program up to 32 tracks.
- Perform steps 3 to 5 while the display is flashing. If the display stops flashing and lights as follows, perform step 3 and subsequent steps again.



7. **Press the PLAY/PAUSE button on the CD Automatic Changer.**
   Playback begins with the first track in the program.

Checking the Program

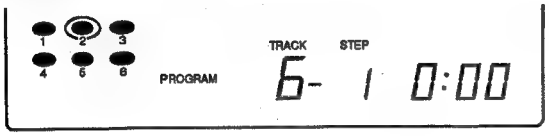
You can check the programmed sequence of playback to determine which tracks will be played in which order.

Note:
- The program contents cannot be displayed during playback. Press the STOP/CANCEL button if the CD Automatic Changer is in play mode.

1. **Press the CALL button once on the CD Automatic Changer.**

The first track in the program are displayed, along with its sequence number.

For example:



This display shows that track 6 on Disc No. 2 is played first.

2. **Press the CALL button repeatedly.**
The rest of the tracks in the program are displayed, along with their sequence numbers.

Listening to Programmed Tracks Repeatedly

1. **Press the REPEAT button to listen to the programmed sequence of playback repeatedly.**

2. **Then press the PLAY/PAUSE button.**

Updating the Program

Adding Tracks to the Program

- You cannot add any track to the program while playing. If the CD Automatic Changer is playing, press the STOP/CANCEL button.

Perform steps 3 to 5 in the section "Programmed Play on page 12".

Program modification

- You cannot modify the program while playing. If the CD Automatic Changer is playing, press the STOP/CANCEL button.

1. **Hold down the CALL button until the track or step to be modified appears.**
Select them while the step is flashing on the display.
The track and step appear on the display, and the step flashes.

2. **Select the Disc. No. and track.**
The track and step appear on the display, and the step flashes.

- If the display stops flashing and lights, perform step 1 and subsequent steps again.

3. **Press the MEMORY button.**

Deleting Tracks from the Program

- The program contents cannot be deleted during playback. Press the STOP/CANCEL button if the CD Automatic Changer is in play mode.

1. **Press the CALL button.**
Press the CALL button until the track or step to be deleted appears on the display.

2. **Press the STOP/CANCEL button on the CD Automatic Changer.**
The track being displayed will be deleted.

To delete all programmed steps:
- Set the CD Automatic Changer to the Stop mode, press the STOP/CANCEL button and delete all programmed steps.
- Switch the power off.
- The program remains in memory until you switch the power off. To program new tracks, first turn the power off the delete the whole program.

To cancel the PROGRAM mode:
- Set the CD Automatic Changer to the Stop mode, press the PLAY MODE button, and select another mode.

Random Play

In RANDOM mode, the CD Automatic Changer selects and plays tracks at random, from among the 6 discs in the magazine.

- Selections can be made so that each track would be played only once.

1. **Press the PLAY MODE button and select the random mode.**
The RANDOM indicator lights.

2. **Press the PLAY/PAUSE button on the CD Automatic Changer or CD CONTROL ▶ button on the Remote Controller.**
CD Automatic Changer starts playing tracks at random.

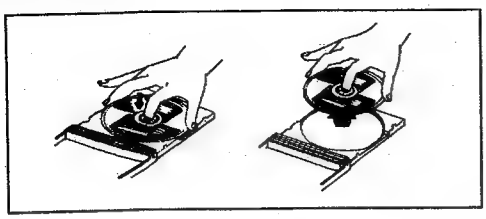
- If you set the CD Automatic Changer to the REPEAT mode by pressing the REPEAT button, even after all tracks have been played once, the CD Automatic Changer will again select and play at random to continue the random playback.

3. **To cancel random playback, press the STOP/CANCEL button.**

To cancel the RANDOM mode:
- Set the CD Automatic Changer to the Stop mode, press the PLAY MODE button, and select another mode.

Handling Compact Discs & The Magazine

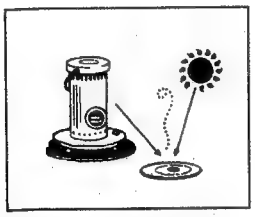
How to handle CDs



When handling compact discs, do not touch the surface of the disc (reflective silver side-the side without the label).

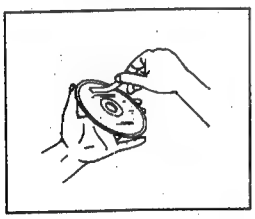
Since compact discs are made of plastic, they are easily damaged. If the disc gets dirty, dusty, scratched or warped, the sound will not be picked up correctly and, in addition, such discs may cause the CD Player-changer to malfunction.

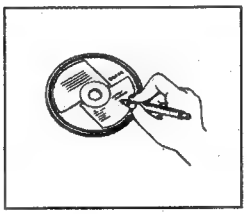
Storage



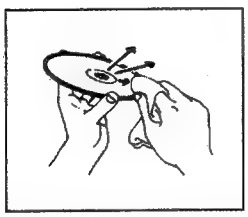
Make sure than the discs are kept in their cases. If the discs are piled, one on top of another, without their protective cases, they can be damaged. Do not put discs in any location where they can be exposed to direct sunlight- or in any place where the humidity or the temperature are high. Avoid leaving discs in your car!

Maintenance of Discs





- Do not damage the label side, or stick paper to, or use any adhesive on this surface.



- When there are fingerprints or other dirt adhering to a disc, wipe the disc with a soft, dry cloth, with a movement going from the inside, outwards.
- If it is difficult to clean, wipe the disc with a cloth moistened with water.
- Never use record cleaners. petrol, alcohol or any anti-static agents.

Recommendations on handling the magazine

1. Always keep the magazine loaded with its six disc trays.
2. When removing or inserting the disc trays, the magazine should be held horizontal.
3. Only load the magazine with compact discs already located on disc tray. Never load a disc directly into the magazine without a disc tray.
4. Do not expose it to high temperatures or to direct sunlight.
5. Do not dismantle the magazine.
6. Take care not to drop or bang the magazine.
   Do not apply any high loadings to the disc trays, particularly when removed from the magazine.
7. Never apply such solvents as petrol or thinner, nor insecticide to the surfaces of the magazine or the disc trays. Such solvents may damage their surfaces.
8. If you wish to use 8 cm (3") CD please obtain the special magazine (XC-M73), designed for these.

Only use compact-discs bearing the mark shown below:

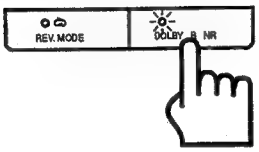
COMPACT
disc
DIGITAL AUDIO

Using the Tape Deck

The tape deck has an Auto Tape Select feature, which can tell the difference between various types of cassette tape. It can distinguish between Normal (Type I) and CrO_2 - High Position (Type II).

Playing a Tape

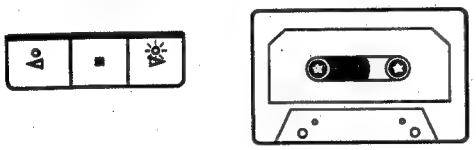
1. **Press the EJECT button to open the cassette holder.**
2. **Insert a cassette and shut the cassette holder.**
3. **If the tape was recorded with Dolby B noise reduction, press the DOLBY B NR switch.**
   The indicator light will go on.



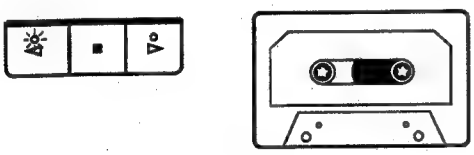
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
  "DOLBY" and the double-D symbol ⊡⊡ are trademarks of Dolby Laboratories Licensing Corporation.

4. **Start playback by either of the following methods: (Deck B only)**
- Press the ◁ or ▷ button.

Press the ▷ button if the tape is wound mostly on the left side.



Press the ◁ button if the tape is wound mostly on the right side.



- Select TAPE with the SOURCE SELECTOR button on the amplifier.

Note:
- When cassettes are in both decks A and B, deck B starts first.

Stopping Playback and Ejecting the Tape

1. **Press the STOP button on the tape deck.**

2. **Press the EJECT button to open and remove the tape from the cassette holder.**
3. **Shut the cassette holder.**

Note:
- If the system is turned off while a tape is playing, you may not be able to eject the tape. You will need to turn the system back on and press the EJECT button to open the cassette holder.

Stopping and Restarting Playback

1. **Press the PAUSE button on the tape deck.**

Playback of the tape in deck B stops temporarily.

Note:
- The PAUSE button only applies to deck B.

2. **Press the ◁ or ▷ button.**
   The restarts playback of the tape in deck B.

Changing the Playback Direction (Deck B only)

1. **To change the playback direction during playback, press the ◁ or ▷ button.**
   The other side of the tape will now play.
2. **To change the playback direction without starting playback, press the ◁ or ▷ button while also pressing the stop ■ button.**

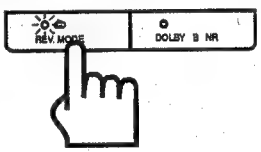
Fast-Winding the Tape

Press the ◀◀ or ▶▶ buttons on the Tape Deck to advance the tape rapidly in the direction of the arrows.

REV. mode selection

Press the REV. MODE button and select the replay mode.

If the REV. MODE button indicator is off, the non-reverse mode is effective. If you press the REV. MODE button and turn the indicator on, the reverse mode will become effective.



Non Reverse mode
The tape on deck A and the tape on deck B are played continuously and repeatedly in the direction of the arrow (▷).
When playing of the tape on deck A ends, then that of the tape on deck B will start automatically. When playing of the tape on deck B begins, the tape on deck A will be automatically rewound.
When playing of the tape on deck B ends, playing of the tape on deck A will begin automatically. When playing of the tape on deck A begins, the tape on deck B will be automatically rewound.

Reverse mode
One side of the tape on deck A and the both sides of the tape on deck B are played continuously and repeatedly.
When playing of the tape on deck A ends, playing of the tape on deck B will begin automatically. When playing of one side of the tape on deck B ends, the other side of the tape on deck B will be automatically played. When playing of the both sides of the tape on deck B ends, playing of the tape on deck A begins automatically. The tape on deck A is rewound automatically when deck B starts playing.

1. **Insert cassettes into decks A and B.**
2. **Press the REV. MODE button and select the REV. mode.**
3. **Press the ▷ button on deck A or the ◁ or ▷ button on deck B.**

- When you select TAPE with the SOURCE SELECTOR on the amplifier, deck B starts first.

Music Scanning

The music scan function will detect the blank segments between tracks. The blank should be about 4 seconds long for the music scan to be effective.

You can locate the beginning of the current track or next track quickly by pressing the playback button and the fast-winding button simultaneously.

Searching for Beginning of the Current Track

- If the tape is traveling in the forward direction, press the ◀◀ fast-winding button while simultaneously pressing the ▷ playback button.
- If the tape is traveling in the reverse direction, press the ▶▶ fast-winding button while simultaneously pressing the ◁ playback button. (deck B only)

Searching for Beginning of the Next Track

- If the tape is traveling in the forward direction, press the ▶▶ fast-winding button while simultaneously pressing the ▷ playback button.
- If the tape is traveling in the reverse direction, press the ◀◀ fast-winding button while simultaneously pressing the ◁ playback button. (deck B only)

Note:
- The deck that is playing will stop if the music scan function is used on the other deck.

The music scan function is not effective:
- When the track being scanned contains an area of low sound level.
- When the blank between tracks is short.
- When there is noise, for example, a hum between tracks.

Recording a Tape

Recording Notes
- Deck A is used for playback only, and deck B is used for both recording and playback.
- To reduce hiss, use the Dolby B noise reduction system. Press the DOLBY B NR button. The indicator light will go on.
- To record on both sides A and B continuously, select reverse mode by pressing the REV. MODE button.
- The recording level is set automatically.
- If the small tabs on cassette tapes which prevent accidental erasure have been removed, the contents of the tape cannot be over-recorded or erased. To record or erase, cover the holes with adhesive tape. The tab in the upper left corner controls the side facing you; and the other tab controls the opposite side.
- If you are recording an AM broadcast and you hear interference, move the BEAT CUT switch on the rear panel of the cassette deck & amplifier unit from Position 1 (the normal mode) to Position 2.

Recording from Various Sources

1. **Insert a cassette for recording into deck B.**
2. **Select the source you are recording from.**
3. **Press the Pause ⏸ button on the tape deck while simultaneously pressing the REC/REC MUTE button.**
   This puts the deck B in REC/PAUSE mode.

4. **Start the source to be recorded.**
5. **Press the Play ◁ or ▷ button on the deck B to start recording.**
   To record on both sides of tape, start recording in the forward (▷) direction.
6. **To stop recording, press the Stop ■ button.**
7. **To stop recording temporarily, press the Pause ⏸ button on deck B.**
   To restart recording again, press the Play button ◁ or ▷.

Dubbing a Tape

Normal-speed Dubbing

1. **Insert the cassette for playback into deck A and the cassette for recording into deck B.**

- The type of tape (Normal or CrO_2) used for recording must be the same as that used for playback.
- With the Dolby system on, tapes are recorded in the same Dolby mode as the pre-recorded tape, regardless of whether the DOLBY B NR button is ON or OFF (the DOLBY B NR indicator remains off while dubbing is in progress.)

2. **Press the Pause ⏸ button while simultaneously pressing the REC/REC MUTE button on deck B.**
   This places deck B in REC/PAUSE mode.
3. **Press the Play button ▷ on deck A.**
4. **Press the Play button ◁ or ▷ (depending on which side of the tape you want to record onto) on deck B.**
   The tape-to-tape recording starts.

Note:
- You cannot listen to another source during normal-speed dubbing.
- To stop normal-speed dubbing before end of either the playback or record tape, press the Stop ■ buttons on decks A and B.

High-Speed Dubbing

1. **Insert the cassette for playback into deck A and the cassette for recording into deck B.**
2. **Press the HIGH SPEED DUBBING button on the Tape Deck.**
   The high-speed tape-to tape recording starts.

Note:
- You can listen to another source while high-speed dubbing is in progress.
- To stop high-speed dubbing before reaching the end of either playback or record tape, press the Stop ■ button on deck B.
- If nearby television is on during high-speed dubbing, beeping noise may be recorded onto the record tape. So turn off the television or move it farther away.

3. **Press the Stop ■ button on deck A when you hear the end of a track to record from many different tapes (for example, to create a "Greatest Hits" tape).**

   Deck A stops playback, and deck B automatically creates about a 4 second blank, then pauses.

Note:
- If you don't want this blank, press the Pause ⏸ button on deck B before pressing the Stop ■ button.

4. **Put another tape in to deck A.**
5. **Press the HIGH SPEED DUBBING button on the Tape Deck.**
   The high-speed dubbing restarts.
6. **To record tracks from other tapes, repeat steps 3-5.**

Note:
- ***It should be noted that it may be unlawful to re-record prerecorded tapes, records, or discs without the consent of the owner of copyright in the sound recording and in any copyright musical or literary work embodied in that recording.***

Erasing a Tape

1. **Insert the tape to be erased into deck B.**

- When you want to erase both sides, press the REV. MODE button so the indicator lights.

2. **Press the Pause II button while simultaneously pressing the REC/REC MUTE button.**
   This puts the deck in REC/PAUSE mode.

3. **Press the SOURCE SELECTOR button on the amplifier to select the TAPE.**

4. **Press the ◁ or ▷ button (depending on which side of the tape you want to erase) on deck B.**
   The erasure of the tape begins.

Direct Recording from the CD Automatic Changer

Direct recording permits a tape deck to start recording automatically in synchronism with a CD Automatic Changer.

1. **Insert the cassette for recording into deck B.**
- If you wish to record on both sides of the cassette, press the REV. MODE button so the indicator lights.

2. **Set the magazine.**

3. **Press the CD DIRECT REC button on the Tape Deck.**

- The CD Automatic Changer and the Tape Deck are activated, and recording begins with the first track of Disc No.1.
- To stop direct recording, press the Stop ■ button on deck B or the STOP/CANCEL button on the CD Automatic Changer.

Note:
- If you press the Disc button, ⏮ or ⏭ button during recording, the track to be recorded is changed.

Recording CD Tracks in Auto-Edit Mode

In Auto-Edit mode, tracks from the CD will automatically be selected to determine which tracks should go on side A of the tape and which should go on side B.

The selection is based on the lengths of the tracks and the length of the tape.
This ensures a proper "fit" of the tracks recorded on the tape. It prevents a track from being cut off when the end of the tape is reached.

1. **Insert the cassette for recording in deck B.**
- When you want to record both sides of a cassette, select reverse mode by pressing the REV. MODE button so the indicator lights.

2. **Set the magazine.**

3. **Press the STOP/CANCEL button on the CD Automatic Changer.**

4. **Press the EDIT button on the CD Automatic Changer and select the Auto Edit mode.**
   The A. EDIT indicator lights.

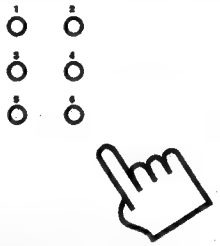
5. **Enter the length of the tape to be recorded using the +10 and +1 buttons.**

For example: To set a period of 46 minutes, press the +10 button four times and press the +1 button six times.

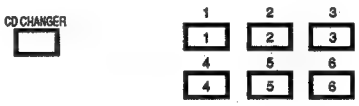
6. **Press the SIDE A/B button.**

- The CD Automatic Changer calculates which tracks should be placed on side A and which should be placed on side B.

7. **Press the Disc button and specify the Disc No. of the disc to be recorded.**



- If you use the Remote Controller, press the CD CHANGER button and then specify one of 1 to 6 with a numeric key.



- To change the disc, specify the Disc No. of another disc again.
- To start recording the tracks on the selected CD with a track other the first, press the ⏮ or ⏭ button on the CD Automatic Changer or press the ⏮ or ⏭ button on the Remote Controller to specify the track with which recording is to start.

8. **Press the MEMORY button on the CD Automatic Changer.**
   The Auto Edit program is created automatically.

- The last track to be recorded, the number of steps, and the remaining time of side B of the set tape are shown on the display.
  When you press the SIDE A/B button again, the last track of side A of the set tape to be recorded, the number of steps, and the remaining time of the tape are shown on the display.
- To check the Auto Edit contents, press the CALL button. Each time you press the button, the track and step of the displayed side will show on the display.

Note:
- Up to 16 tracks can be allocated for each side of the cassette.

9. **Press the CD DIRECT REC button on the Tape Deck.**

- The tape is automatically rewound to the beginning of side A, and then recording begins.
- When the Tape Deck is set in the reverse mode, after the last track is recorded on side A, the tape deck high-speed-erases to the end of side A. Then it changes direction to side B and begins recording the remaining tracks.
- To stop recording, press the Stop ■ button on deck B, or press the STOP/CANCEL button on the CD Automatic Changer.

Note:
- **During recording in the Auto-Edit Mode, do not operate the CD Automatic Changer.**

To cancel the Auto-Edit mode, press the STOP/CANCEL button on the CD Automatic Changer, then press the PLAY MODE button.

Recording CD Tracks in Programmed-Edit Mode

You can make your favorite selections from 6 CD and record them on cassette.

1. **Insert the cassette for recording in deck B.**
- When you want to record both sides of a cassette, select reverse mode by pressing the REV. MODE button so the indicator lights.

2. **Set the magazine.**

3. **Press the STOP/CANCEL button on the CD Automatic Changer.**

4. **Press the EDIT button on the CD Automatic Changer and select the Programmed Edit mode.**
The P. EDIT indicator lights.

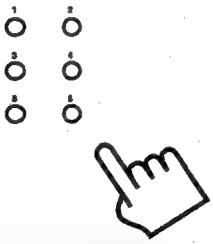
5. **Enter the length of the tape to be recorded using the +10 and +1 buttons.**

For example: To set a period of 46 minutes, press the +10 button four times and press the +1 button six times.

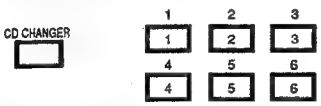
6. **Press the SIDE A/B button.**

- This tells the system that you will be choosing tracks to be recorded on side A of the tape.
- The length of time for one side of the tape is displayed. This is half of the total tape length. The total time for the tracks you choose for each side cannot exceed this time.
- If you do not press the SIDE A/B button, side A is automatically selected.

7. **Press the Disc button and specify the Disc No. of the disc containing the track to be recorded.**



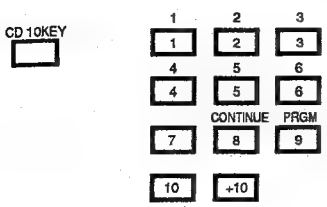
- If you use the Remote Controller, press the CD CHANGER button and then specify one of 1 to 6 with a numeric key.



- To change the disc, specify the Disc No. of another disc again.

8. **Press the ⏮ or ⏭ button and select the track to be recorded.**

- If you use the Remote Controller, press the CD 10KEY button, then specify a track with a numeric key.



9. **Press the MEMORY button on the CD Automatic Changer.**

- Up to 16 tracks can be allocated for each side of the cassette.
- If the length of a track exceeds the remaining tape length, the time indication blinks on the display. Choose a different track number.
- To delete a track from the program, press the CALL button to display the track to be deleted. Press the STOP/CANCEL button on the CD Automatic Changer.

10. **If you also want to record on the other side of the tape, press the SIDE A/B button and repeat steps 7-9.**

- To check the Programmed Edit contents, press the CALL button. Each time you press the button, the track and step of the displayed side are shown on the display.
To modify a track in the program, press the CALL button, and call the track to be modified. Select a new Disc No. and track, then press the MEMORY button.

11. **Press the CD DIRECT REC button on the Tape Deck.**

- The tape is automatically rewound to the beginning of side A, and then recording begins.
- When the Tape Deck is set in the reverse mode, after the last track is recorded on side A, the tape deck high-speed-erases to the end of side A. Then it changes direction to side B and begins recording the remaining tracks.
- To stop recording, press the Stop ■ button on deck B, or press the STOP/CANCEL button on the CD Automatic Changer.

To cancel the Programmed-Edit mode, press the STOP/CANCEL button on the CD Automatic Changer, then press the PLAY MODE button.

Note:
- The program cannot be edited during recording. To modify the program, cancel the Programmed-Edit mode, and perform step 4 and subsequent steps.

Note:
- During recording the Programmed-Edit mode, do not operate the CD Automatic Changer.

Creating a Blank During Recording

Use the Record Muting function when you do not want to record a section of the source.

1. **Press the REC/REC MUTE button on the Tape Deck at the beginning of the section you don't want to record.**

A blank of about 4 seconds is created on the cassette, and then the deck pauses.

2. **To start recording again, press the ◁ or ▷ button.**

- To create a blank of more than 4 seconds, hold down the REC.REC MUTE button. When you release this button, the deck pauses.
- When the source you are recording from is the CD Automatic Changer and the CD DIRECT REC button is used, the REC/ REC MUTE button will not function.
- The Remote Controller REC button dose not have the REC MUTE function.

Recording with the Timer

The Tape Deck can be set up to record a tape automatically. This is especially useful for recording broadcasts when you are not around, or late at night when you are asleep.

1. **Insert a cassette for recording in to deck B.**
2. **Set the timer, by following the steps in "Setting the Timers".**
3. **Select one of the following sources:**

TUNER TIMER REC	Records TUNER preset stations
- - TIMER REC	Records from the source selected before turning off the system.

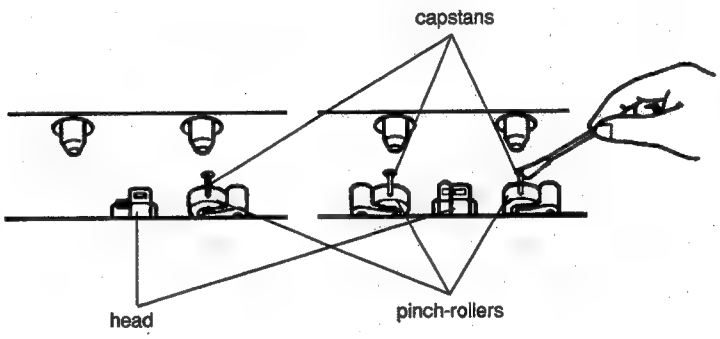
Care and Handling

You must handle your cassette tapes, and tape deck carefully to preserve the full length of their life-times.

- If a tape is loose in its cassette, take up the slack by inserting a pencil in one of the reels and rotating it.
  If a tape is loose, it may get stretched, cut, or caught in the cassette.
- Do not touch the tape surface.
- Do not store the tape:
  — In dusty places
  — In direct sunlight or heat
  — In moist areas
  — On a TV or speaker
  — Near a magnet
- The use of C-120 or thinner tape is not recommended.

Tape Deck

- If the head, capstans, or pinch-rollers of the tape deck become dirty, the following may occur:
  — Impaired sound quality
  — Discontinuous sound
  — Fading
  — Incomplete erasure
  — Impossible to record
- Clean the head, capstans and pinch-rollers with a cotton swab moistened with alcohol.



Using the Tuner

Listening the Broadcasts

The tuner can receive FM and AM broadcasts. Stations can be tuned in manually, automatically, or from preset memory storage.

Manual Tuning

1. **Select the broadcast band you want to tune in by pressing the FM of AM button on the Tuner.**

2. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to tune in a station.**

3. **Hold down the TUNING/TIMER/DIMMER button to change the frequency rapidly, then tap the button to set the frequency precisely.**

Automatic Tuning

1. **Select the broadcast band you want to tune in by pressing the FM or AM button on the Tuner.**
2. **Hold down the TUNING/TIMER/DIMMER button (◄ or ►) for a moment, and then release the button.**

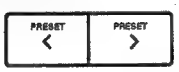
- When a station is tuned in, the TUNED indicator lights up.

Note:
- The Tuner will tune in the nearest strong station.

Presetting Stations in Memory

You can store up to 40 of your favorite radio stations (FM and AM) in memory, giving you quick, easy access to the stations.

1. **Select a band by pressing either the FM or AM button on the Tuner.**
2. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to tune in a station.**
3. **Press the MEMORY button on the Tuner.**
   The "MEMORY" indicator on the Tuner display blinks for 5 seconds.
4. **Press the PRESET button (< or >) on the Tuner to assign a number (1-40) to the station, or enter a number (1-40) with the Remote Controller's numeric keypad.**



Example:
To enter 7, press "7".
To enter 17, press "+10", then "7".
To enter 20, press "+10", then "10"

- Before using the numeric keypad, press the TUNER button. This will allow you to use the numeric keypad in the Tuner mode.
- If the "MEMORY" indicator has stopped blinking, press the MEMORY button again and repeat step 4.
- If the preset number you chose already has a station assigned to it, the old station will be replaced by the new one.

5. **Press the MEMORY button again.**
   This stores that station in memory, with the preset number (1-40) you chose in step 4.
6. **Repeat steps 1-5 for each station you want to store in memory with a preset number.**

Caution! If the system is unplugged or if a power failure occurs, the preset stations stored in memory may be lost.

Cancelling Preset Stations

1. **Press the CANCEL button on the Tuner.**
   The "CANCEL" light on the Tuner display blinks for 5 seconds.

2. **Press the PRESET button (< or >) on the Tuner to select the preset station you want to cancel.**
   If the "CANCEL" light has stopped blinking, press the CANCEL button again and repeat step 2.
3. **Press the CANCEL button again.**
   The preset station will be cancelled.

Tuning in Preset Stations

- Press the PRESET button (< or >) on the Tuner to select the preset station you want. The preset station numbers are displayed sequentially each time you press the PRESET button.
- You can also select a station by entering its preset number on the Remote Controller's numeric keypad.
- Before using the numeric keypad, press the TUNER button. This will allow you to use the numeric keypad in the Tuner mode. .

FM Reception Modes

There are two FM reception modes: AUTO and MONO.

AUTO: Stations are tuned in with either STEREO or MONO, depending on the FM signal.
MONO: Stations are tuned in with MONO only. This will reduce interference noise of weak stations and make the reception sound better.

1. **Press the FM MODE/ MUTE button on the Tuner to switch between the AUTO and MONO reception modes.**

2. **Press the FM MODE/MUTE button on the Tuner to the AUTO mode to receive the station in stereo.**

- If a stereo broadcast is received when the FM band is selected, the "STEREO" light will be displayed on the Tuner.
- If the FM Reception Mode is MONO, the "STEREO" light will not be displayed.

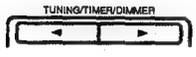
Using the Timers

Setting the Clock

The clock will be displayed even when the system is turned off. Pressing the TUNING/TIMER/DIMMER button (◄ or ►) will switch between two brightness levels for the clock.

1. **Press the CLOCK ADJUST button on the Tuner.**
   The hours digits blink.

2. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to set the hours digit.**



- Press the ► button to increase the hour, and press the ◄ button to decrease the hours.
- To enter a new hour digit, press the CANCEL button and repeat step 2.

3. **Press the MEMORY button on the Tuner.**

This sets the hour portion of the time.

The minutes digits will blink.

4. **Press the TUNING/TIMER/DIMMER button (◄ or ►) to set the minutes digit.**

- It's a good idea to set the minutes digits one minute ahead. Then you can start the clock when it reaches the set time exactly (according to the correct time from the TV, radio, or telephone).
- To enter a new minute digit, press the CANCEL button and repeat step 4.

5. **Press the MEMORY button.**
   The clock starts as soon as you press the MEMORY button.

Caution! If there is a power failure, or if you unplug the stereo, the clock time will be lost. Repeat steps 1-5 when power is restored.

- Using the TUNING/TIMER/DIMMER button to change luminosity of time display by two steps under STANDBY status.
  ► : Increases luminosity
  ◄ : Decreases luminosity

Setting the Timers

With the timers you can make tape recordings of broadcasts, CD's, or tapes when you're not around. You can also play these music sources at specified times without recording them.

- Use TIMER 1 and TIMER 2 record a radio broadcast when you're not home, or late at night when you're asleep.
- Use the DAILY timer to record a broadcast that occurs at the same time every day.
- The procedure for setting TIMER 1, TIMER 2 and the DAILY timer is the same. You need to tell the system:
  — The name of the timer (TIMER 1 , TIMER 2, or DAILY).
  — The time the timer should turn the system on.
  — The time the timer should turn the system off.
  — The source the timer should turn on (Tuner, CD, or Tape).
  — The volume level that should be used during recording or playback.

Note:
- The clock must be set to the correct time for the timers to be effective.

Caution! Do not operate the remote controller when you are programming the timer.

Choosing a Timer

Press the TIMER 1, TIMER 2, or DAILY button on the Tuner to select a timer. This puts the system in the Timer Setting mode. The information that the system expects next will blink on the display.

Setting the Start Time

1. **Press the TUNING/TIMER/DIMMER buttons to set the hour that the system will turn on.**

   The ◄ button makes the hour number decrease, and the ► button makes the hour number increase.

2. **Press the MEMORY button.**
   This stores the hour portion of the start-time in memory.

3. **Press the TUNING/TIMER/DIMMER buttons to set the minute.**

4. **Press the MEMORY button.**
   This stores the minute portion of the start-timer in memory.

Setting the Stop Time

1. **Press the TUNING/TIMER/DIMMER buttons to set the hour that the system will turn off.**

2. **Press the MEMORY button.**
   This stores the hour portion of the stop-time in memory.

3. **Press the TUNING/TIMER/DIMMER buttons to set the minute.**

4. **Press the MEMORY button.**
   This stores the minute portion of the stop time in memory.

Selecting the Source

1. **Press the TUNING/TIMER/DIMMER button to select a source.**

   Repeatedly pressing the ► button displays the sources in the following order:

Display	What it means
-- -- -- -- -- --	Plays from whichever source was used just before turning off the system
TUNER	Plays FM or AM broadcast
TUNER TIMER REC	Records FM or AM broadcast
CD	Plays a CD
TAPE	Plays a tape
-- -- TIMER REC	Records from whichever source was used just before turning off the system

Note:
- If you choose an FM or AM radio station as the source, select the preset station by pressing the PRESET button on the Tuner.

2. **Press the MEMORY button.**
   This stores the source to play or record in memory.

Setting the Volume

1. **Press the TUNING/TIMER/DIMMER button to select a volume level.**
   Repeatedly pressing the ► button displays the volume levels in the following order.:

Display	What it means
VOL -- --	Volume set to the level used before shut the power off.
VOL -- 0	Volume off
VOL -- A	Volume barely on
VOL -- B	Volume at about a 1/4 turn of the volume knob
VOL -- C	Volume at about a 1/3 turn of the volume knob

2. **Press the MEMORY button.**
   This stores the volume level for timed playback or recording in memory. To change your selection, press the CANCEL button and enter a new value.

Starting the Timer

Press the Timer button to start the timer. The timer you chose should light on the display.

Note:
- If the timer light does not light, the timer was not set properly, and you need to set the start time again.

To change your selection, press the CANCEL button and enter a new value.

Turning the System Off

Press the POWER button on the amplifier to turn the system off.

- The system is now programmed to turn on at the preset start-time, and play or record until the stop-time.
- It will record or play the preset source at the preset volume level until the top-time is reached.
- If you turn the system on before the start-time, the timer will still operate as programmed at the start-time.

Resetting the Timers

To reset a timer, press the button (TIMER 1, TIMER 2, or DAILY) on the Tuner twice. Now the timer is set again and will use the same start-time, stop-time, source, and volume level as before.

Setting the Wake-Up and Sleep Timer

You can set a timer so it turns on to wake you up or turns off when you go to sleep.

Setting the Wake-Up Timer

The wake-up timer serves as an alarm clock. It turns the system on after a programmed time lapse and plays the source that was used before the system was turned off. You can set a wake-up time from between 5 minutes and 12 hours.

1. **Press the POWER switch on the amplifier so it is off.**
2. **Press the WAKE UP/SLEEP button on the Tuner.**
   This tells the system that you are going to set the wake-up time.
3. **Press the WAKE UP/SLEEP button repeatedly until the desired wake-up time appears.**

- Each time you press the WAKE UP/SLEEP button, the wake-up time lapse changes in the following order:

  →0:05→0:10→0:15→0:30→0:45→1:00→1:30→2:00→3:00→(every hour)→12:00→ (back to the beginning)

- If you make a mistake, press the CANCEL button on the Tuner and enter a new wake-up time with the WAKE UP/SLEEP button.

The system will now turn on after this time lapse.

- The wake-up timer has priority over TIMER 1, TIMER 2, and the DAILY timer.
  This means that if the start-time for one of the timers occurs before the wake-up time, the system will wait until the wake-up time to turn on.

Note:
- If CD is the source that will be used, playback begins with the first track.

Setting the Sleep Timer

The sleep timer is used to turn off the system after a specified time lapse. With this timer you can fall asleep listening to music, knowing that the system will shut off automatically and not stay on all night. You can set the sleep timer to turn the system off from between 5 minutes and 2 hours.

1. **Press the POWER switch on the Amplifier so it is on.**
2. **Start the source you want to listen to.**
3. **Press the WAKE UP/SLEEP button on the Tuner.**

   This tells the system that you are going to set the sleep time.

4. **Press the WAKE UP/SLEEP button repeatedly until the desired sleep time appears.**

   Each time you press the WAKE UP/SLEEP button, the sleep time lapse changes in the following order:

   →0:05→0:10→0:15→0:30→0:45→1:00→1:15→1:30→1:45→2:00→ (back to the beginning)

- If you make a mistake, press the CANCEL button on the Tuner and enter a new sleep time with the WAKE UP/SLEEP button.

The system will now turn off after this time lapse.

- The sleep timer has priority over TIMER 1, TIMER 2 and the DAILY timer.

This means that if the stop-time for one of the timers occurs before the sleep time, the system will wait until the sleep time before turning itself off.

Checking the Remaining Time

After setting the wake-up or sleep timer, you can check the time remaining until the system turns on (wake-up time) or shuts off (sleep time).

Press the WAKE UP/SLEEP button.

The remaining time is displayed for 5 seconds. Then the clock time appears again.

Adding More Time

If you want more time before the wake-up timer turns the system on (or the sleep timer turns the system off), follow these steps:

1. **Press the WAKE UP/SLEEP button.**
   The remaining time is displayed for 5 seconds. Then the clock time appears again.
2. **Press the WAKE UP/SLEEP button again before the clock time is displayed.**

- Keep pressing this button until the desired additional time is reached.

Now the system will wait until the added amount of time until turning on or shutting off.

Cancelling the Time Setting

If you decide you don't want the system to wake you up or play music while you fall asleep, you can turn these timers off.

1. **To cancel the wake-up timer, press the POWER button on the Amplifier.**
   This turns the power on.

2. **To cancel the sleep timer, press the POWER button on the Amplifier.**
   This turns the power off.

Using the Remote Controller

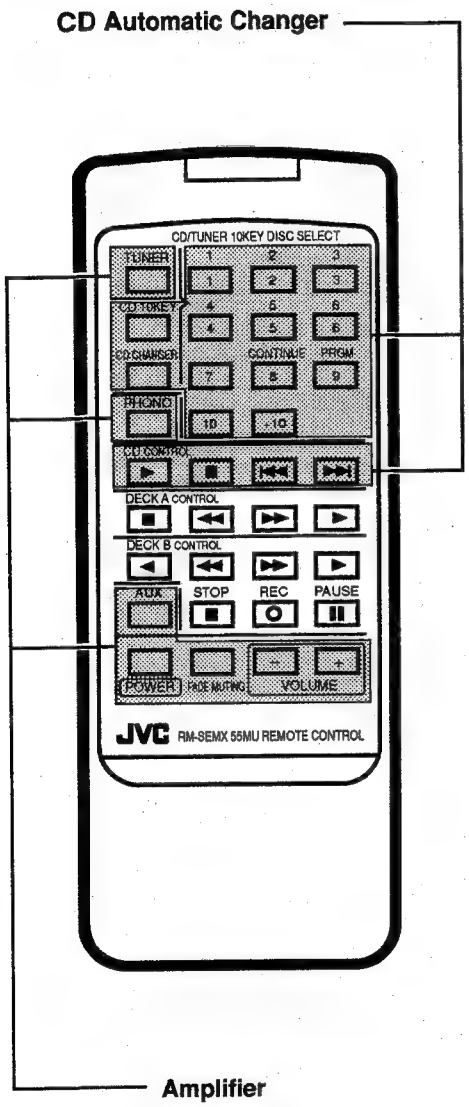
Operating the Remote Controller

You can use the Remote Controller to operate the system without leaving your chair. You can use it up to a distance of 23 feet.

Point the Remote Controller at the remote sensor on the Amplifier.

Note:

- When the Tuner is selected as the source, and Cd OFF is displayed, only the PLAY button on the Remote Controller can be used. To use other buttons on the Remote Controller (for programming and other operations), select CD with the SOURCE SELECTOR, or press the CD PLAY button on the Remote Controller first.

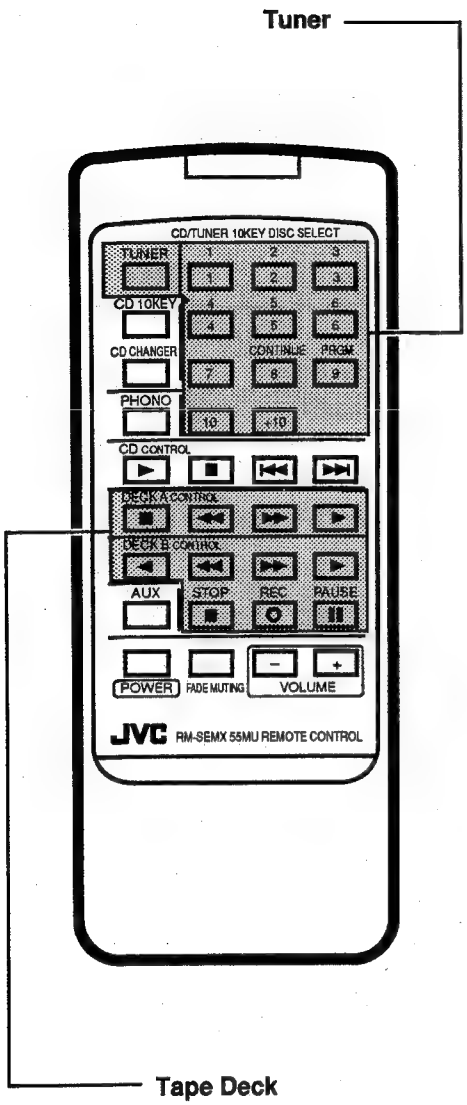


Amplifier

Turn on the main unit	POWER
Adjust volume level	VOLUME
Gradually reduce the volume to zero	FADE MUTING
Set the SOURCE SELECTOR of the amplifier to TUNER	TUNER
Set the SOURCE SELECTOR of the amplifier to VIDEO/AUX	AUX
Set the SOURCE SELECTOR of the amplifier to PHONO	PHONO

CD Automatic Changer

Play a CD	▶
Stop playback of a CD	■
Set the numeric keys to the DISC mode	CD CHANGER
Select the Disc No.	1 2 3 / 4 5 6
Place numeric keys in CD mode	CD 10KEY
Select track number	1 2 3 / 4 5 6 / 7 CONTINUE 8 PRGM 9 / 10 +10
Scanning through the track number	⏮ , ⏭
Change the PLAY MODE of the CD Automatic Changer to CONTINUOUS mode after press the CD CHANGER button	CONTINUE 8
Change the PLAY MODE of the CD Automatic Changer in PROGRAM mode after press the CD CHANGER button	PRGM 9



Tape Deck

DECK A

Play a tape	▶
Stop playback	■
Fast forwarding or fast rewinding	◀◀ , ▶▶

DECK B

Play a tape in forward direction	▶
Play a tape in reverse direction	◀
Stop playback temporarily (deck B)	PAUSE ❚❚
Stop playback	STOP ■
Fast forwarding or fast rewinding	◀◀ , ▶▶
Recording in forward direction	REC ● + ▶
Recording in reverse direction	REC ● + ◀
Pausing recording	REC ● + PAUSE ❚❚
Stopping recording	STOP ■

Tuner

Selecting Tuner mode	TUNER
Selecting a preset station	1 2 3 / 4 5 6 / CONTINUE PRGM 7 8 9 / 10 +10

Note:
- Where "+" is indicated, press and hold the first button illustrated, then press the second.

Troubleshooting

Sympton	Possible Cause	Action
No sound is heard.	Speakers are connected incorrectly.	Re-connect speakers (See "Connecting the SystemComponent")
Impossible to record.	Tape tabs are broken out.	Cover tabs with adhesive tape.
Interference during broadcast.	Antenna is disconnected. The loop antenna is too close to the system.	Re-connect the antenna securely. Change the position and direction of the loop antenna.
CD Sound is discontinuous.	The CD is seratched or stained.	Clean or replace the CD.
The Remote Controller cannot be operated.	There is an obstruction blocking the remote sensor on the amplifier. The batteries of the Remote Controller are weak.	Remove the obstruction. Replace the batteries.
The magazine does not eject when the EJECT button is pressed.	The power is off. The magazine has not been inserted correctly.	Turn on the system. Push the magazine all the way in and try pressing the EJECT button again.
A selection on a CD was not played.	The CD is in the tray upside down.	Put the CD in the tray with the label side facing up.
Operations are disabled.	The built-in microprocessor may malfunction due to external electrical interference.	Unplug the system, then plug it back in.
The cassette holder cannot be opened.	The system was turned off because the timer was operated while the tape was running.	Turn on the system.

Specifications

Double Cassette Amplifier

AMPLIFIER SECTION

Output Power

SPEAKERS — **25 watts per channel, min. RMS, both channels driven into 8 ohms, from 40Hz to 20kHz with no more than 0.9% total harmonic distortion.**

Total Harmonic Distortion at Half-Rated Power	0.07%
Input Sensitivity/ Impedance (1kHz)	
VIDEO/AUX	220mV/47 k ohms
PHONO	3mV/47 k ohms
SEA Center Frequencies	63, 250, 1k, 4k, 16kHz
SEA Control Range	± 10 dB

CASSETTE DECK SECTION

Frequency Response	
CrO_2:	30 - 16,000Hz
Normal:	30 - 15,000Hz
Wow and Flutter (WRMS)	0.09%
Dimensions (W x H x D)	10-7/8 x 7-1/4 x 12-5/16 inches (275 x 183.5 x 312 mm)
Weight	13.7 lbs (6.2 kg)

CD Automatic Changer/Tuner

CD AUTOMATIC CHANGER SECTION

CD capacity	6 discs
Dynamic Range	96 dB
Signal-to-Noise Ratio	102 dB
Wow and Flutter	Unmeasurable

TUNER SECTION

FM	
Tuning range	87.5 MHz - 108.0 MHz
Usable Sensitivity	0.95µV/75 ohms (10.8dBf)
Signal-to-Noise Ratio (IHF-A Weight)	
MONO	80 dB
STEREO	73 dB
AM	
Tuning range	530 kHz - 1,710 kHz
Dimensions (W x H x D)	10-7/8 x 7-1/4 x 12-1/4 inches (275 x 183.5 x 311 mm)
Weight	8.6 lbs (3.9 kg)

POWER SPECIFICATIONS

Area	Line Voltage & Frequency	Power Consumption
Canada,U.S.A	AC 120V~,60Hz	100 watts
UK	AC240V~,50Hz	205 watts
Australia		
Continental Europe	AC230V~,50Hz	110 watts
Other areas	AC110/127/220/240V~selectable,50/60Hz	

Accessories

FM Antenna Cable	1
AM Loop Antenna	1
MAGAZINE	1
Speaker Cord	2
Remote Control Unit	1
Batteries (UM-4/AAA (24F)/R03)	2

Design and specifications subject to change without notice.

DX-MX55MBK

2212

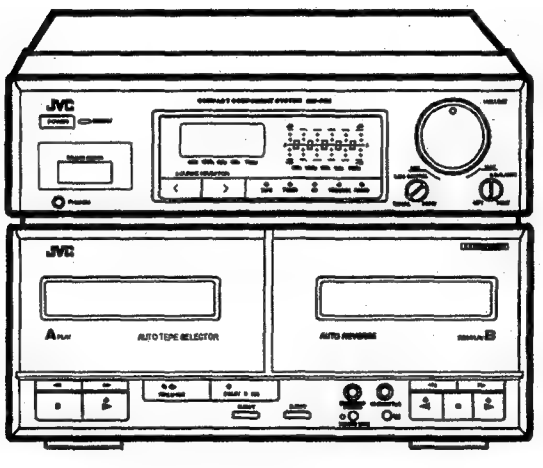
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

CA-MX55MBK

(UNIT No. DX-MX55MBK)



* For instruction manual, please refer to the CA-MX55MBK (S.M. No.20342).

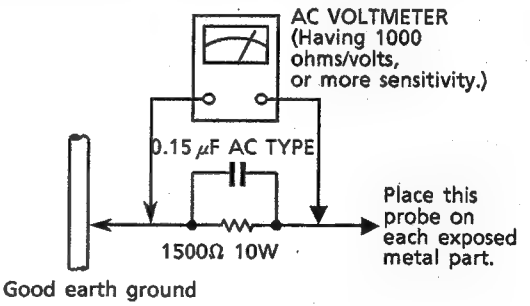
Contents

2212

No. 20343
Mar. 1992

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, contorl shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor.
     Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Specifications

AMPLIFIER SECTION

Output power	25 watts per channel, min. RMS, both channels driven into 8 ohms, from 40Hz to 20 kHz, with no more than 0.9% total harmonic distortion
Total Harmonic Distortion(1kHz) at Half-Rated Power	0.07%
S.E.A. Center Frequencies	63, 250, 1k, 4k, 16kHz

CASSETTE DECK SECTION

Frequency Response	
Metal Tape	—
CrO2 Tape	30~16,000Hz
Normal Tape	30~15,000Hz
Signal-to-Noise Ratio*	57dB (Chrome)
Wow and Flutter	0.09% (WRMS)

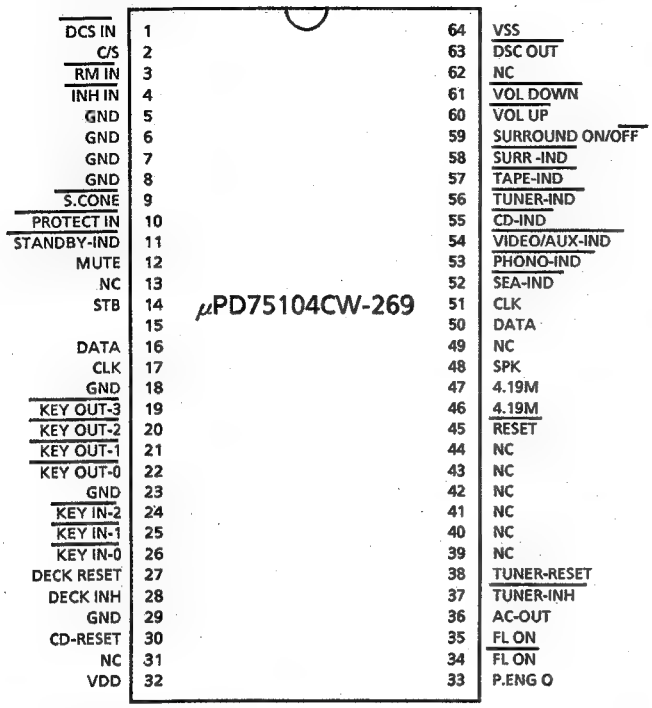
Dimensions (W × H × D)	10-7/8 × 7-1/4 × 12-5/16 inches (275 × 183.5 × 312mm)
Weight	14.8 lbs. (6.7kg)

*At Peak level, weighted.

Description of Major LSIs

■ μPD75104CW-269(IC901) : System controller

1. Terminal Layout



2. KEY Matrix

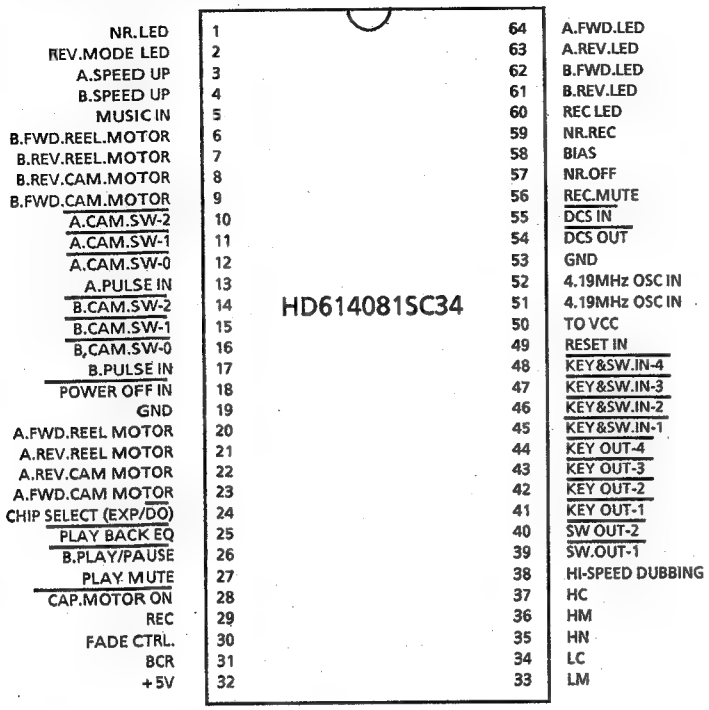
	KEY IN 0 (PIN26)
KEY OUT 0 (PIN22)	SOURCE SEL ▷
KEY OUT 1 (PIN21)	SOURCE SEL ◁
KEY OUT 2 (PIN20)	POWER

3. Terminal Description

Pin NO.	Symbol	I/O	Function and Operations	Pin NO.	Symbol	I/O	Function and Operations
1	DCS IN	I	Compulink signal input	33	P.ENG O	--	Non connection
2	C/S	I	Chip select	34	FL.ON	--	Non connection
3	RM IN	I	Remote control signal input	35	FL ON	--	Non connection
4	INH IN	I	System inhibit signal input (AC outlet in : H)	36	AC-OUT	O	Power secondary on/off control
5	GND	--	Connected to GND	37	TUNER INH	--	Non connection
6	GND	--	Connected to GND	38	TUNER RESET	--	Non connection
7	GND	--	Connected to GND	39	NC	--	Non connection
8	GND	--	Connected to GND	40	NC	--	Non connection
9	S.CONE	--	Connected to GND	41	NC	--	Non connection
10	PROTECTOR	I	Protector detection signal	42	NC	--	Non connection
11	STANDBY IND	O	Indication signal for standby/remote cont.	43	NC	--	Non connection
12	MUTE	O	Mute signal	44	NC	--	Non connection
13	NC	--	Non connection	45	RESET	I	System reset signal input
14	STB	O	Strobe signal output (To IC601)	46	4.19M	--	Clock oscillation
15	—	--	Connected to GND	47	4.19M	--	Clock oscillation
16	DATA	O	Serial data output (To IC601)	48	SPK	O	Speaker relay on signal output
17	CLK	O	Clock signal output (To IC601)	49	NC	--	Non connection
18	GND	--	Connected to GND	50	DATA	--	Non connection
19	KEY OUT 3	O	Key matrix output	51	CLK	--	Non connection
20	KEY OUT 2	O	Key matrix output	52	SEA-IND	--	Non connection
21	KEY OUT 1	O	Key matrix output	53	PHONO-IND	O	PHONO indication signal output
22	KEY OUT 0	O	Key matrix output	54	V/A -IND	O	VIDEO / AUX indication signal output
23	GND	--	Connected to GND	55	CD-IND	O	CD indication signal output
24	KEY IN 2	I	Key matrix input	56	TUNER-IND	O	TUNER indication signal output
25	KEY IN 1	I	Key matrix input	57	TAPE-IND	O	TAPE indication signal output
26	KEY IN 0	I	Key matrix input	58	SURR.IND	--	Non connection
27	DECK RESET	O	Deck reset signal output	59	SURR.ON/OFF	--	Non connection
28	DECK INH	O	Deck inhibit signal output (Power on : H)	60	VOL UP	O	Volume up signal output
29	GND	O	Connected to GND	61	VOL DOWN	O	Volume down signal output
30	CD RESET	--	Pull up	62	NC	--	Non connection
31	NC	--	Non connection	63	DCS OUT	O	Compulink signal output
32	VDD	--	Power supply (+5V)	64	VSS	--	Ground

■ HD6140815C34 (IC491) : Deck controller

1. Terminal Layout



2. Key Matrix

	KEY IN 1 (PIN45)	KEY IN 2 (PIN46)	KEY IN3 (PIN47)	KEY IN4 (PIN48)
KEY OUT 1 (PIN41)	—	A◀◀	A▶▶	A▶
KEY OUT 2 (PIN42)	B◀	B◀◀	B▶▶	B▶
KEY OUT 3 (PIN43)	A■	B■	B●	B▮▮
KEY OUT 4 (PIN44)	A▶▶B	DOLBY	REV. MODE	CD.REC
SW OUT 1 (PIN39)	A CrO_2	B CrO_2	—	—
SW OUT 2 (PIN40)	B PACK	REV REC	FWD REC	A PACK

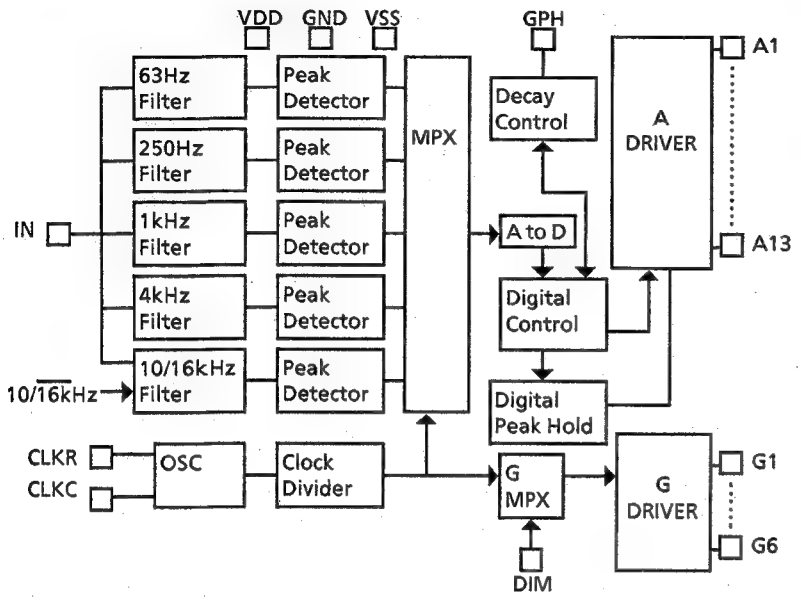
3. Terminal Description

Pin NO.	Symbol	I/O	Function and Operations	Pin NO.	Symbol	I/O	Function and Operations
1	NR.LED	O	NR indication signal output	33	LM	--	Not used
2	REV.MO.LED	O	Reverse mode indication signal output	34	LC	O	Rec. EQ control signal (Normal speed / CrO_2)
3	A.SPEED UP	O	Deck A reel speed control signal output	35	HN	O	Rec. EQ control signal (High speed / Normal)
4	B.SPEED UP	O	Deck B reel speed control signal output	36	HM	--	Not used
5	MUSIC IN	I	Music scan signal input	37	HC	O	Rec.EQ control signal (High speed / CrO_2)
6	B.FWD REEL	O	Deck B reel motor control signal (forward)	38	HI-SPEED	O	Capstan&EQ control (High speed dubbing)
7	B.REV.REEL	O	Deck B reel motor control signal (reverse)	39	SW OUT-1	O	Leaf switch signal output
8	B.REV.CAM	O	Deck B cam motor control signal (reverse)	40	SW-OUT-2	O	Leaf switch signal output
9	B.FWD.CAM	O	Deck B cam motor control signal (forward)	41	KEY OUT-1	O	Key matrix output
10	A.CAM SW-2	I	Cam switch signal from Deck A	42	KEY OUT-2	O	Key matrix output
11	A.CAM SW-1	I	Cam switch signal from Deck A	43	KEY OUT-3	O	Key matrix output
12	A.CAM SW-0	I	Cam switch signal from Deck A	44	KEY OUT-4	O	Key matrix output
13	A.PULSE IN	I	Deck A reel pulse input	45	KEY&IN-1	I	Key matrix & leaf switch input
14	B.CAM SW-2	I	Cam switch signal from Deck B	46	KEY&IN-2	I	Key matrix & leaf switch input
15	B.CAM SW-1	I	Cam switch signal from Deck B	47	KEY&IN-3	I	Key matrix & leaf switch input
16	B.CAM SW-0	I	Cam switch signal from Deck B	48	KEY&IN-4	I	Key matrix & leaf switch input
17	B PULSE IN	I	Deck B reel pulse input	49	RESET IN	I	Reset signal input
18	POWER OFF IN	I	Power off signal input	50	TO VCC	--	PULL UP (+ 5V)
19	GND	--	Ground	51	OSC	--	Clock oscillation
20	A.FWD.REEL	O	Deck A reel motor control signal (forward)	52	OSC	--	Clock oscillation
21	A.REV.REEL	O	Deck A reel motor control signal (reverse)	53	GND	--	Ground
22	A.REV.CAM	O	Deck A cam control signal (reverse)	54	DSC OUT	O	Compulink signal output
23	A.FWD.CAM	O	Deck A cam control signal (forward)	55	DCS IN	I	Compulink signal input
24	CHIP SELECT	--	Connected to + 5V	56	REC.MUTE	O	Recording mute control signal
25	PLAYBACK EQ	O	Playback equalizer control signal	57	NR.OFF	O	NR on/off control signal
26	B.PLAY/PAUSE	O	Deck A / B select signal	58	BIAS	O	Bias circuit on/off control signal
27	PLAY MUTE	O	This terminal is L during playback	59	NR.REC	O	NR rec/play control signal
28	CAP.MOTOR	O	Capstan motor on/off control signal	60	REC LED	O	Recording indication signal
29	REC	O	Recording control signal	61	B.REV LED	O	B deck reverse LED indication signal
30	FADE CONT.	--	Non connection	62	B.FWD LED	O	B deck forward LED indication signal
31	BCR	O	Bias current control signal (CrO_2 : H)	63	A.REV LED	O	A deck reverse LED indication signal
32	+5V	--	Power supply voltage (+ 5V)	64	A.FWD LED	O	A deck forward LED indication signal

Internal Block Diagram of Other ICs

■ XR1094CP (IC921) : Display Driver

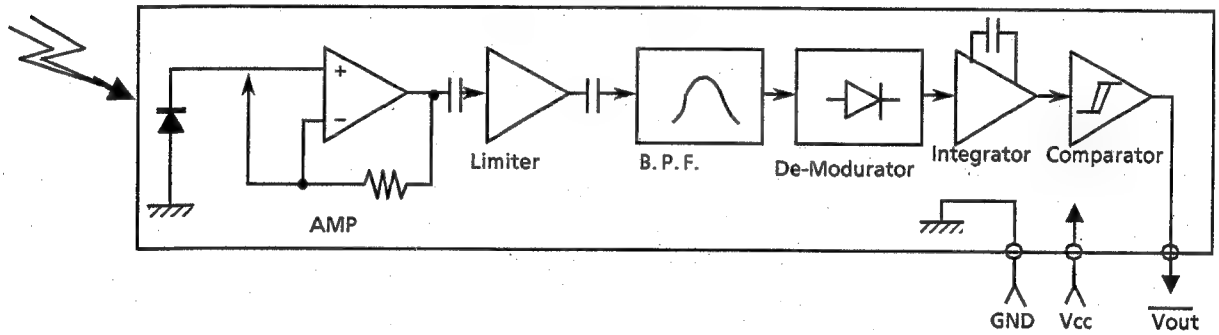
1. Internal Block Diagram



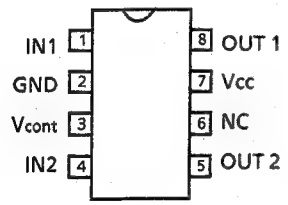
2. Terminal Description

Pin No.	Symbol	Description
1~13	A1~A13	FL anode control
31~26	G1~G6	FL grid control
15	DIM	Connected to ground
16	10k/16k	Input terminal for the filter select "L" : 16kHz, "H" : 10kHz
17	VSS	Power supply(−)
20	GND	Ground
21	IN	Audio signal input
22	GPH	The resistor and capacitor connected to this pin determine the peak hold time.
23	CLKC	A capacitor is connected for the oscillation
24	CLKR	A resistor is connected for the oscillation
32	VDD	Power supply (+)

■ SPS-420-1 (IC922) : Remote control signal detector



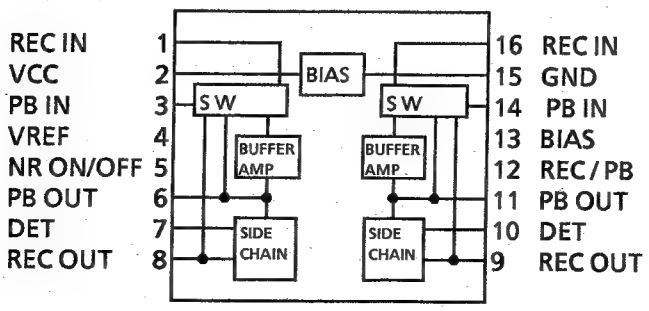
■ LB1639-CV (IC972) : Motor Driver



FUNCTION TABLE

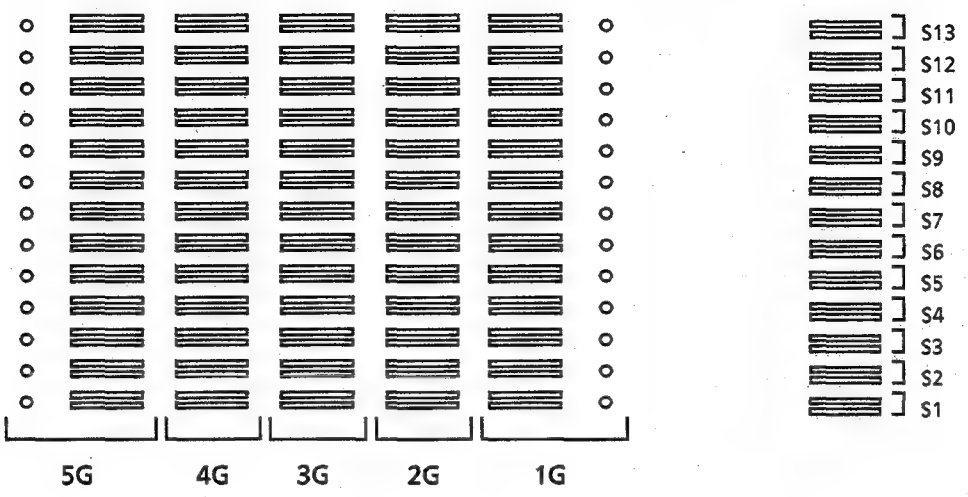
IN 1	IN 2	OUT 1	OUT 2	MOTOR
H	L	H	L	CLOCKWISE
L	H	L	H	COUNTER-CLOCKWISE
H	H	OFF	OFF	WAITING
L	L	OFF	OFF	WAITING

■ HA12136A (IC351) : Noise Reduction Amplifier



Internal Connections of the FL Display Tube

■ ELU0001-117 : FL921



Anode Connection Table

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
CONNECTION	F1	F1	S1	S2	5G	S3	S4	S5	4G	S6	S7	3G	S8	S9	2G	S10	S11	1G	S12	S13	F2	F2

Note F : Filament, G : Grid, a~h : Element, NP : No Pin, NC : No Connection

Disassembly Procedures

■ Top cover removal

1. Remove 2 screws on both sides of the top cover and 2 screws on the rear side.
2. Lift the back of the top cover spreading both sides to remove.

■ Front panel assembly removal

1. Remove the top cover.
2. Cut the tie bands Ⓒ and Ⓓ.
3. Remove the screw Ⓐ.
4. Remove the volume knob and the nut fastning the volume.
5. Disconnect the connectors P331, P332, P333, P334 (Deck PCB) , P321 (Head phone PCB), P612 (Input selector PCB) and the flat wire JB901 (System control PCB) and P972 (Main volume PCB) (Figure 2, 3,4) .
6. Release the hooks Ⓑ and remove the front panel assembly from the chassis, and remove the main volume PCB from the front pannel (Figure 1) .

■ Heat sink cover removal

1. Remove the screw Ⓕ (Figure 5).
2. Remove the cover.

■ Rear panel removal

1. Remove the heat sink cover .
2. Remove the screwsⒼ (Figure 5) .
3. Release the the both hooks to remove the rear panel (Figure 3,4).

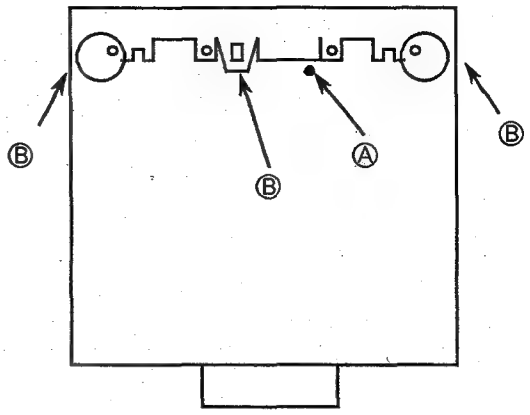


Figure 1 Bottom view

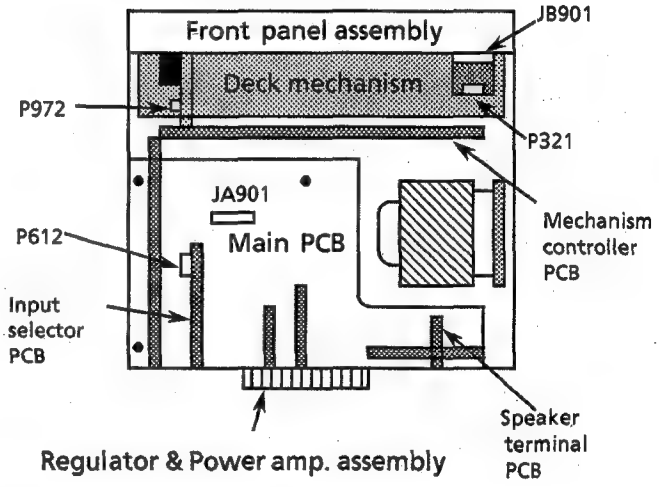


Figure 2 Top view

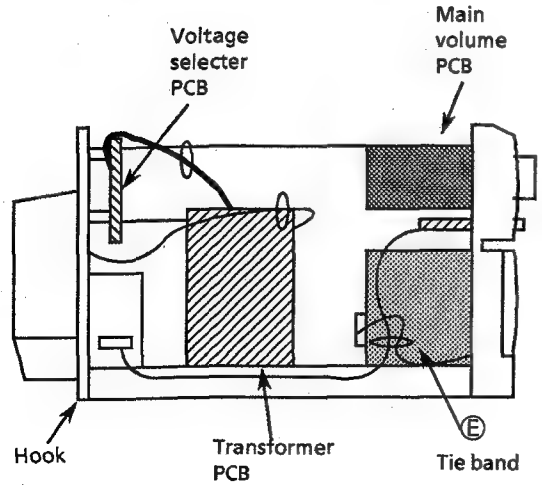


Figure 3 Left side view

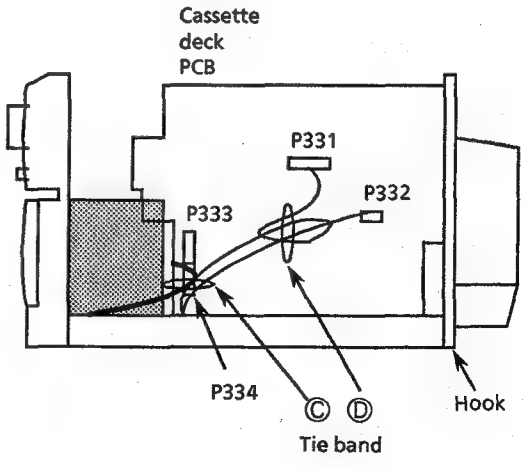


Figure 4 Right side view

■ Main PCB removal

1. Remove the top cover.
2. Remove the rear panel.
3. Disconnect the flat wire JA901 (Figure 2).
4. Remove the cassette deck PCB, input selecter PCB , speaker terminal PCB from the main PCB.
5. Remove the 3 screws fixing the main PCB.
6. Remove the main PCB with the regulator &power amp. assembly.

■ Front PCB assembly removal

1. Remove all the knobs.
2. Remove the front panel assembly.
3. Removew the head phone PCB.
4. Remove the 7 screws fixing the assembly (Figure 6).
5. Remove the assembly.
   The fasteners can be released.

■ Mechanism assembly removal

1. Remove the front panel assembly.
2. Disconnect the connectors P492,493.
3. Remove the 8 blue colored screws Ⓗ and Ⓘ fixing the mechanism.
4. Push the cassette button and remove the cassette mechanism block.

Note The cassette mechanism is grounded through the bottom cover, so when checking the operations with the front panel assembly removed (especially when checking the signal system), be sure to ground the chassis by using some wire. Also, this mechanism is designed for pack sensing, remember that it can not be operated without any tape.

■ Cassette holder removal

1. Remove the cassette mechanism assembly from the front panel assembly.
2. Remove the dampers.
3. Remove the holder spring from the holder bracket.
4. Remove the cassette holder from the holder bracket.

■ Cassette lid removal

Open the doors and slide the cassette lids in the direction of the arrows.

■ Mechanism controller PCB removal

1. Remove the front panel assembly.
2. Remove the screw Ⓘ and release the PCB from the hook Ⓚ.
3. Remove some connectors.

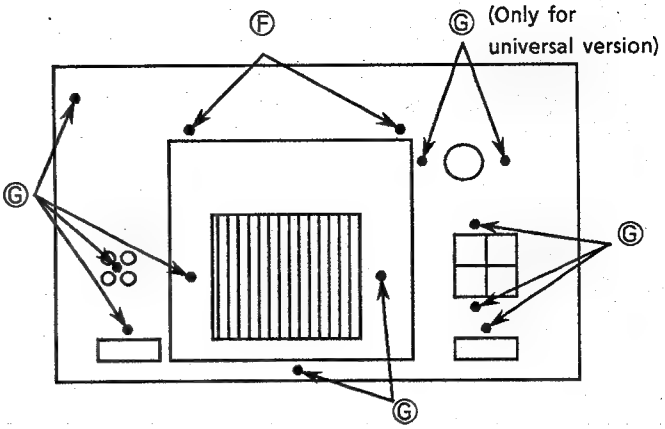


Figure 5 Rear view

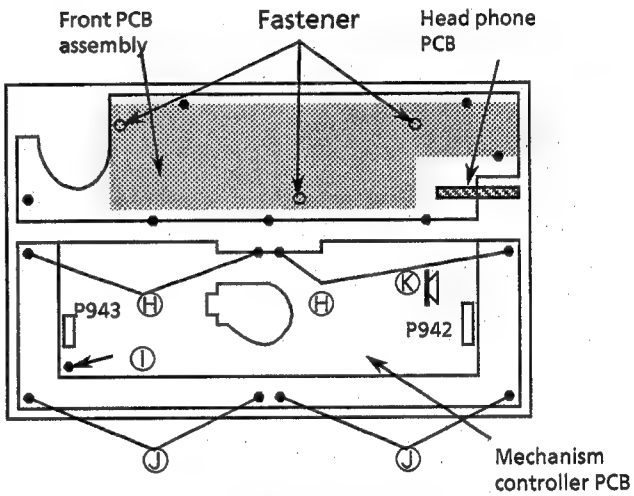


Figure 6 Rear view of the front panel assembly

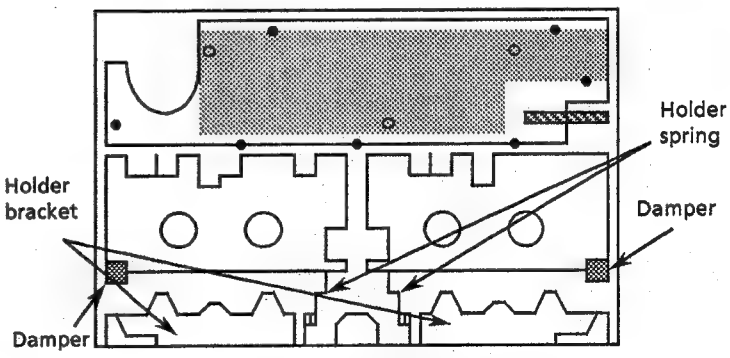


Figure 7 Rear view of the front panel assembly (After removing the mechanism assembly)

Figure 8 Cassette lids

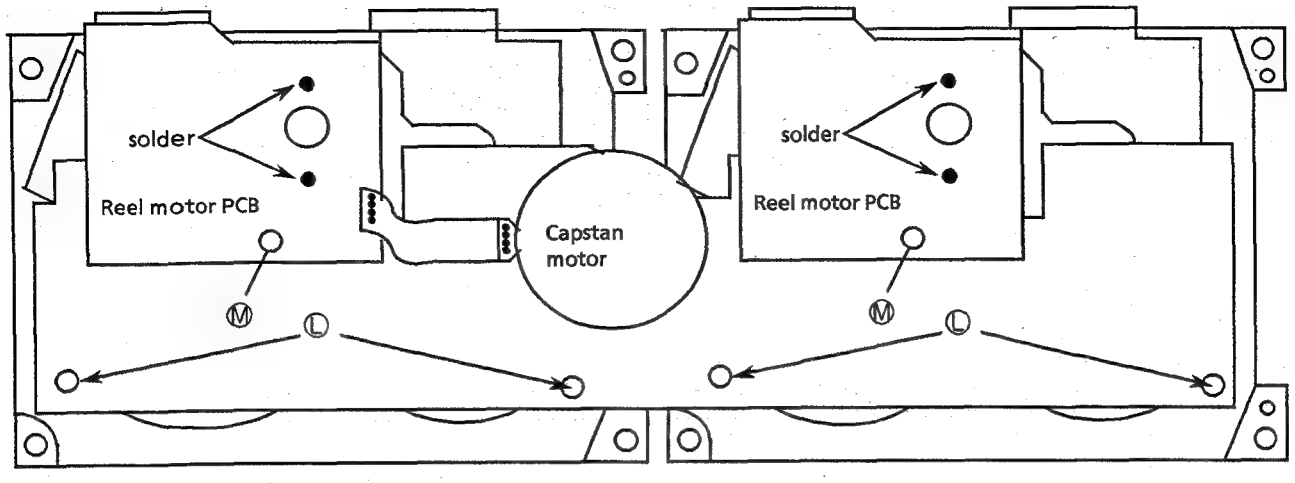


Figure 9 Rear view of the cassette mechanism

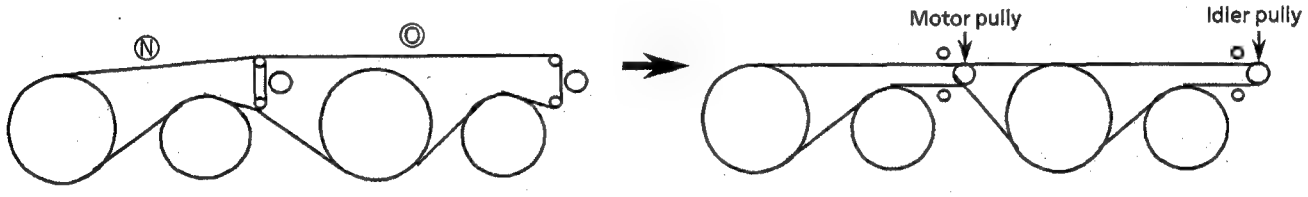


Figure 10 How to put the belts

■ Reel motor PCB removal

1. Remove the mechanism assembly.
2. Remove the mechanism controller PCB.
3. Remove the screws Ⓜ fixing the reel motor PCBs (Figure 9).
4. Unsolder the reel motor.
5. Remove the PCB.

■ Flywheel removal

1. Remove the mechanism assembly.
2. Remove the mechanism controller PCB.
3. Remove the reel motor PCBs.
4. Remove the 4 screws Ⓛ fixing the bracket on which capstan motor is installed (Figure 9).
5. Remove the bracket and the belts.
5. Release the flywheels .

INSTALL

Install the flywheel and the belts to the mechanism as shown in figure 10. (When putting the belts, put the belt Ⓝ first.)
At last, install the bracket with the capstan motor and put the belts on the pullies.

■ CAM switch PCB removal

1. Remove the flywheels.
2. Release the hook fixing the cam switch PCB and remove the PCB.

(When installing the cam switch PCB, assemble the PCB so that part Ⓟ meets part Ⓠ. Figure 11)

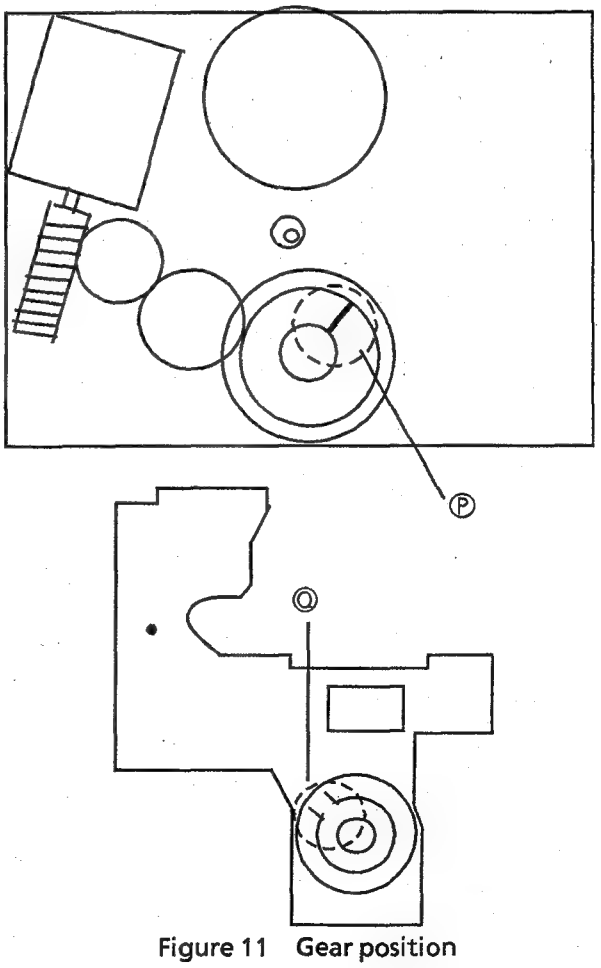


Figure 11 Gear position

■ Head assembly

1. Remove the cassette mechanism assembly.
2. Unsolder the flexible wire on the relay PCB, and remove the 2 screws Ⓢ fixing the head assembly (Figure 13,14).

Notice for installing the head assembly.
The direction of the head for forward or reverse mode is switched by the cam gear.
The position of the head gear for the head assembly installation differs with the head direction.Figure 12 shows the relation of the gears.

■ Pinch roller arm assembly removal (FWD / REV)

1. Release the return springs from the hooks (Figure 14) .
2. Remove the hooks fixing the pinch roller arm assembly, and remove the pinch roller assembly (Figure 13).

■ Reel motor removal

1. Remove the mechanism assembly.
2. Remove the reel motor PCB.
3. Remove the FR arm assembly (Figure 14) .
4. Remove the screws Ⓡ fixing the motor.
5. Release the hooks fixing the motor and remove the motor.

■ Capstan motor removal

1. Remove the mechanism assembly.
2. Remove the mechanism controller PCB.
3. Remove the reel motor PCB.
4. Remove the 4 screws Ⓛ fixing the bracket (Figure 9).
5. Release the hooks fixing the bracket and remove the capstan motor with the bracket.
6. Remove the 2 screws fixing the motor on the bracket and remove the motor from the bracket.

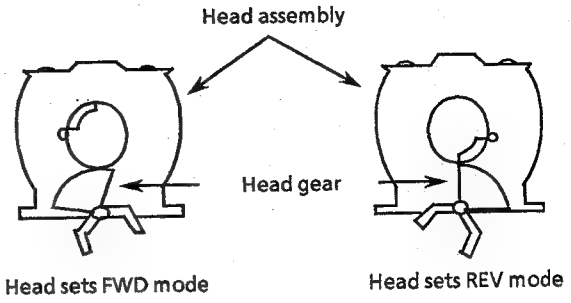


Figure 12 Bottom view of the head assembly

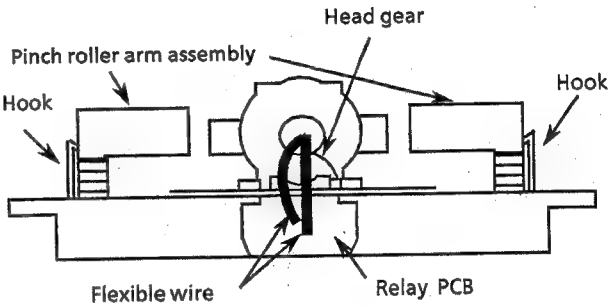


Figure 13 Bottom view of the cassette mechanism

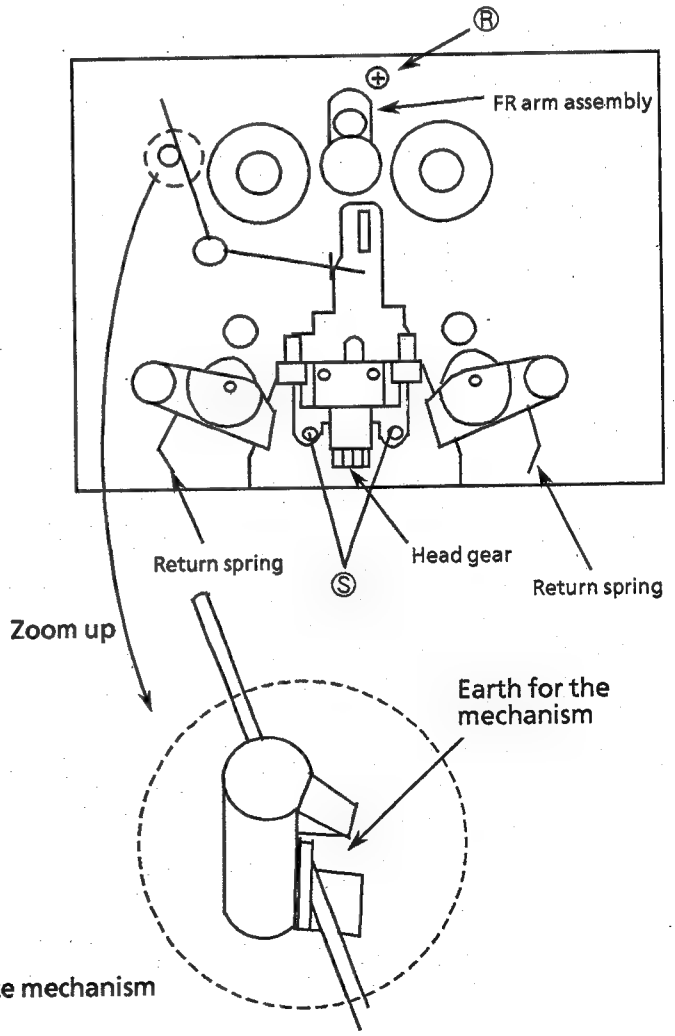


Figure 14 Front view of the cassette mechanism

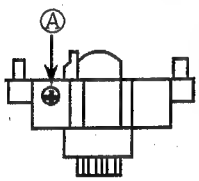
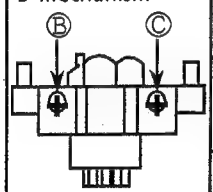
Adjustment Procedures

(1) Measuring instruments for Adjustment

1. Audio frequency signal generator (0dbs output at the 600 ohm output terminal from 50Hz to 20KHz)
2. Attenuator (600 ohm impedance)
3. Electronic voltmeter
4. Standard tapes
   VTT-703(head azimuth adjustment)
   VTT-712 (tape speed , wow & flutter)
   VTT-724 (Reference level)
5. Recording standard tapes
   TMT-7046 (Normal : UR) , AC-513 (CrO2 : SA)
6. 600-ohm resistor for attenuator matching
7. Wow & Flutter meter with frequency counter
8. Distortion meter with band-pass filter
9. Torque gauge : TW-2131N (cassette type)
10. C-120 tape (for checking the tape running)

(2) Adjustment and repairing the mechanism

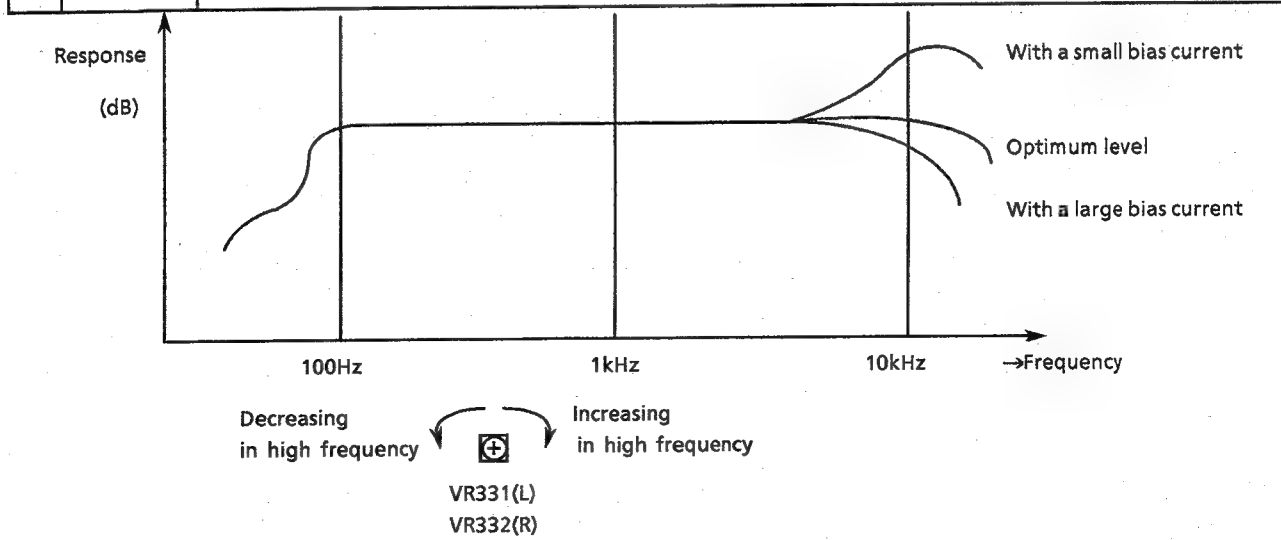
(Adjust and inspect the mechanism before adjusting the electronic circuit)

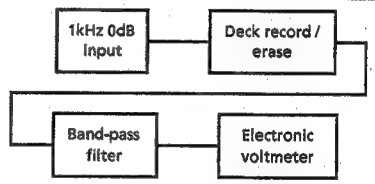
Item	Adjustment Method	Standard value	Remarks
Adjusting azimuth of Rec / Play head	1. Connect an electronic voltmeter to the VCR/DAT REC terminal. (about 1 volt output) 2. Play back VTT-703		1) When the specified characteristic cannot be obtained because of head wear, cut wire, excessive magnetization, etc., replace the head assembly and adjust the head azimuth. Also, perform the adjustment of the playback level, recording bias current, recording level, etc. 2) When there is the difference of more than 3 ~ 4 dB between left and right output levels, replace the head assembly to avoid coomplaints.
A mechanism 	3. Adjust screw Ⓐ so that the output of the voltmeter becomes maximum when PLAY (▶) is pressed.	Maximum	
	4. After making the adjustment,apply screw lock to prevent screw Ⓐ coming loose .		
B mechanism 	5. Adjust screw Ⓑ so that the output of the vltmeter becomes maximum when PLAY (▶) is pressed.	Maximum	
	6. Adjust screw Ⓒ so that the output of the voltmeter becomes maximum when PLAY (◀) is pressed.	Maximum	
	7. After making the adjustment,apply screw lock to prevent screws Ⓑ and Ⓒ coming loose .		
Playback torque	Measure the torque in the playback mode using the torque measurement cassette TW-2131.	26 ~ 62 g-cm	When the standard torque cannot be obtained although the motor drive voltage is right , replace the FR arm assembly or motor.
Fast forward torque .	Measure the torque in the fast forward mode using the torque measurement cassette TW-2131.	80 ~ 200 g-cm	When the standard torque cannot be obtained although the motor drive voltage is right , replace the FR arm assembly or motor.
Rewind torque	Measure the torque in the rewind mode using the torque measurement cassette TW-2131.	80 ~ 200 g-cm	When the standard torque cannot be obtained although the motor drive voltage is right , replace the FR arm assembly or motor.
Wow & Flutter	Play back VTT-712 and connect the wow & flutter meter to the SPK OUT terminals , its reading should be within 0.20% (WRMS).	Less than 0.20%	As a complaint may occur if the wow & flutter fluctuates by 0.1% even though it is allowed in the standard, repairing is required.

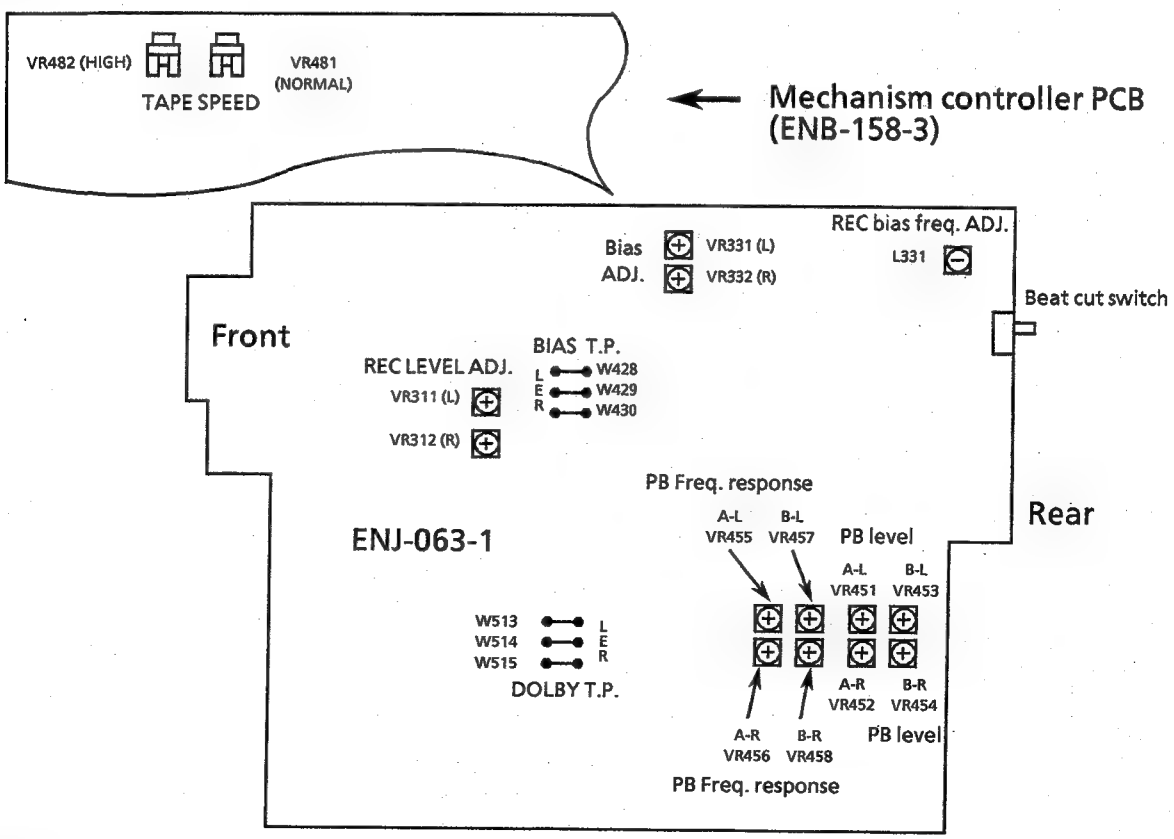
(3) Electrical Circuit Adjustments

Make the following adjustments after adjusting the head azimuth.
In principle, the adjustments should be made in the following sequence.
Set the NR switch to OFF and the BEAT CUT switch to "1".
Adjustments marked with an asterisk (*) should always be made after the head is replaced.

Item		Adjustment Method	Adjustment Location	Standard Value	Remarks
Motor speed		1. Connect a frequency counter to the speaker terminals and play back VTT-712.	Semi-fixed resistor on the main PC Board		Connect a wow & flutter meter with a built-in frequency counter to the speaker terminal.
		2. Normal-speed adjustment Play back deck B and adjust the semi-fixed resistor VR481.	VR481	3,000 ±10 Hz	Adjust the normal speed first, and perform the high speed adjustment.
		3. High-speed adjustment Play back deck B with high speed and adjust the semi-fixed resistor VR482.	VR482	6000 ±20Hz	
* 1	Playback level	Connect an electronic voltmeter between W513 and W514 for left, or W515 and W514 for right. Play back VTT-724 (1kHz) and adjust the semi-fixed resistors.	A deck (L) VR451 (R) VR452 B deck (L) VR453 (R) VR454	400mV	The playback level varies when the head is replaced so should be adjusted. Use an electronic voltmeter with an impedance of 100 kΩ or more.
* 2	Recording bias frequency	Connect a frequency counter to BIAS TP, and recording to a CrO_2 tape.	L331	Beat cut 1 100 ± 5 kHz Beat cut 2 97 ± 5kHz	
* 3	Recording frequency response	Supply 63Hz / 1kHz / 12.5kHz, 30mV signals to VCR/DAT terminal. Record them with the NR switch off. While playing back, adjust VR331 and VR 332 so that the variation of output of 63.5Hz / 12.5kHz to the output of 1kHz satisfies the standard value.	(L)VR331 (R)VR332	0 ± 3 dB for 63Hz and 12.5kHz with 1 kHz as the standard.	1) The recording and playback frequencies of a cassette deck are adjusted by adjusting the bias. This is because the frequency response depends more on the bias current than with an open-reel deck. 2) Perform the adjustment with normal tape and confirm that the values are within the range for CrO_2 tape.
		Note : After completing the recording level adjustment in item 3, check the recording and play back frequencies with the NR switch on. Fine adjust again if the value is 0 ± 4 dB or more at 1 kHz and 12.5 kHz.			

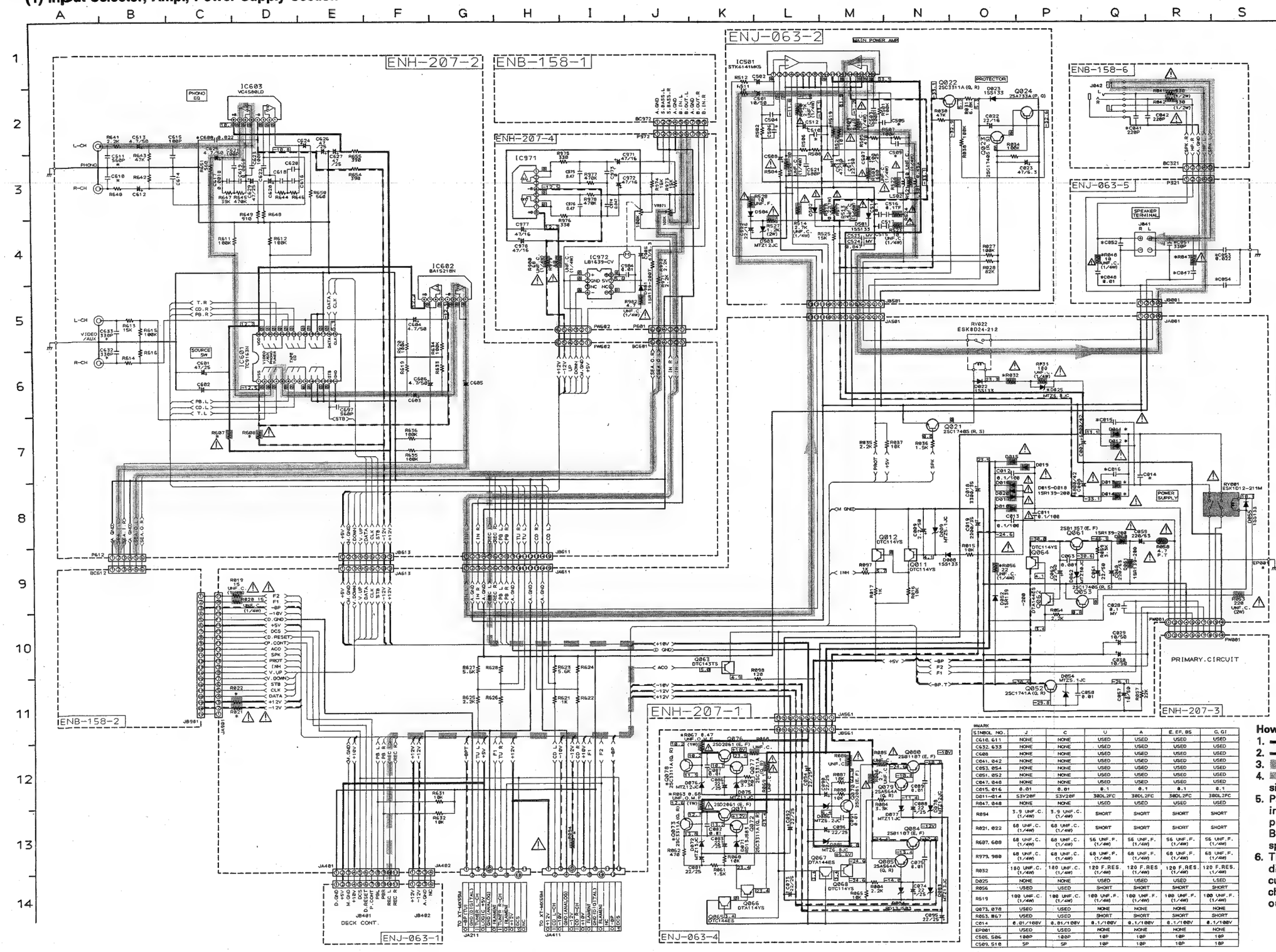


	Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
* 4	Recording and Playback Sensitivity	1. Connect an electric voltmeter to the speaker terminals. 2. Input a 1kHz (300mV) to VCR/DAT terminal and record it with a normal tape. And then, adjust the semi-fixed resistors when playing back.	(L) VR311 (R) VR312	400mV	Adjust with normal tape and make sure that the left / right level difference is 1.0dB or less
* 5	Recording/ playback distortion	1. Input a 1 kHz (300mV) to VCR / DAT terminals and record it. 2. Play it back and check the speaker output with a distortion meter to make sure it is the rated value.		less than 3%	Perform after the bias current and recording level adjustments.
6	Recording/ playback S/N ratio (NR ON)	1. Input a 1 kHz (300mV) to VCR / DAT terminals and record it. While recording, remove the input and record without a signal. 2. Play back and use an electronic voltmeter to compare the 0 dB recording output and the output of the recording without a signal to make sure this is the rated value.		more than 45 dB	
7	Erase ratio check	1. Input a 1 kHz (950mV) to VCR / DAT terminals and record it using TMT-7040 (or AC-513). 2. Rewind and erase part of the recorded section. 3. Compare the outputs of the recorded and erased sections using an electronic voltmeter.		more than 55 dB	Connect a 1 kHz band-pass filter between the deck and electronic Voltmeter When making the adjustment.
					
8	Auto-stop check	When playing back and recording, make sure to operate AUTO STOP.			



Schematic Diagram

(1) Input Selector, Amp., Power Supply Section



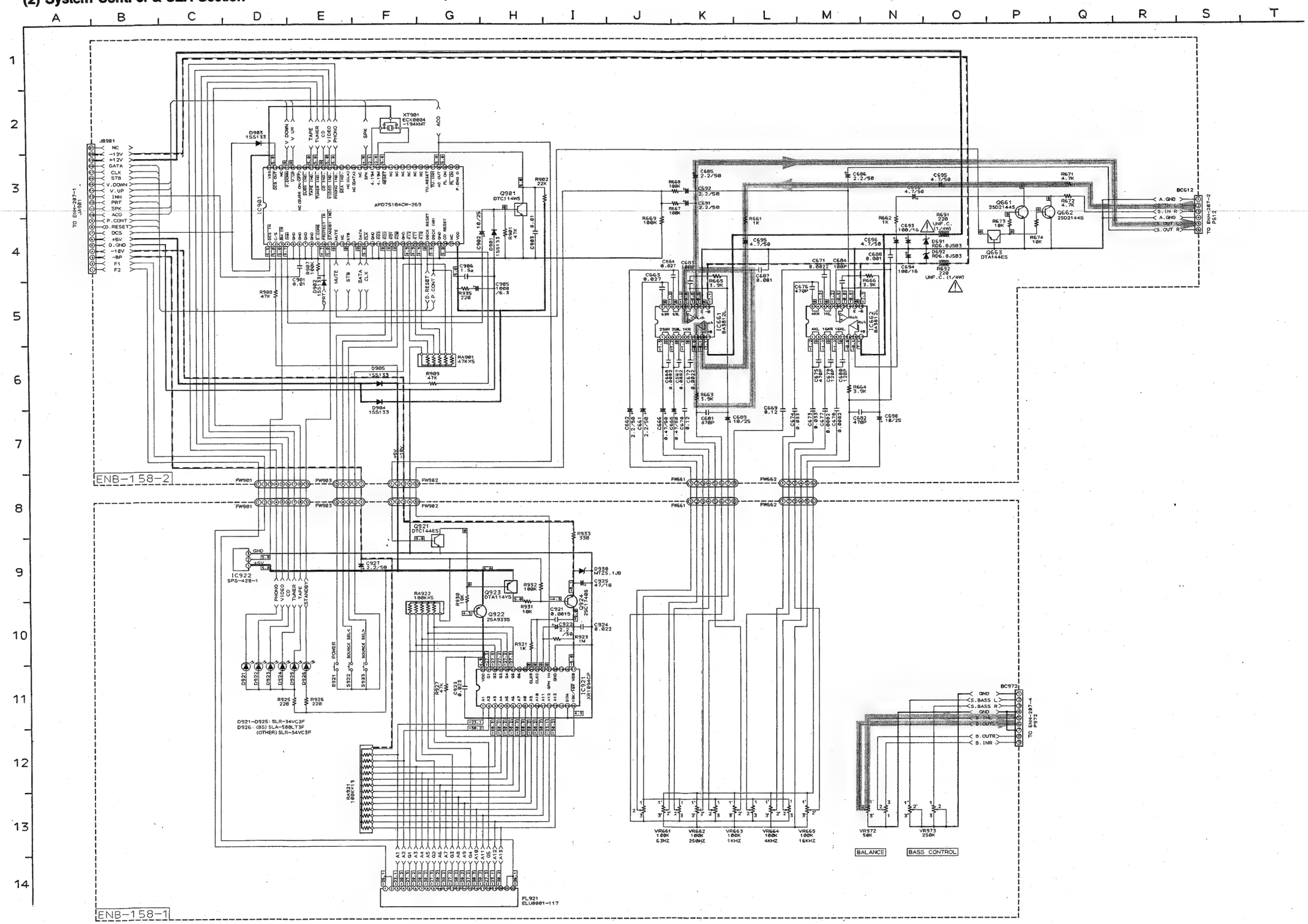
SINBOL NO.	J	C	U	A	E, EF, BS	G, GI
C610, 611	NONE	NONE	USED	USED	USED	USED
C632, 633	NONE	NONE	USED	USED	USED	USED
C688	NONE	NONE	USED	USED	USED	USED
C641, 642	NONE	NONE	USED	USED	USED	USED
C653, 654	NONE	NONE	USED	USED	USED	USED
C651, 652	NONE	NONE	USED	USED	USED	USED
C647, 648	NONE	NONE	USED	USED	USED	USED
C615, 616	0.01	0.01	0.1	0.1	0.1	0.1
D811~814	S3V20F	S3V20F	30DL2FC	30DL2FC	30DL2FC	30DL2FC
R647, 648	NONE	NONE	USED	USED	USED	USED
R894	3.9 UNF.C. (1/4W)	3.9 UNF.C. (1/4W)	SHORT	SHORT	SHORT	SHORT
R021, 022	68 UNF.C. (1/4W)	68 UNF.C. (1/4W)	SHORT	SHORT	SHORT	SHORT
R607, 608	68 UNF.C. (1/4W)	68 UNF.C. (1/4W)	56 UNF.F. (1/4W)	56 UNF.F. (1/4W)	56 UNF.F. (1/4W)	56 UNF.F. (1/4W)
R979, 980	68 UNF.C. (1/4W)	68 UNF.C. (1/4W)	68 UNF.F. (1/4W)	68 UNF.F. (1/4W)	68 UNF.F. (1/4W)	68 UNF.F. (1/4W)
R832	180 UNF.C. (1/4W)	180 UNF.C. (1/4W)	120 F.RES. (1/4W)	120 F.RES (1/4W)	120 F.RES. (1/4W)	120 F.RES. (1/4W)
D025	NONE	NONE	USED	USED	USED	USED
R056	USED	USED	SHORT	SHORT	SHORT	SHORT
R519	100 UNF.C. (1/4W)	100 UNF.C. (1/4W)	100 UNF.F. (1/4W)	100 UNF.F. (1/4W)	100 UNF.F. (1/4W)	100 UNF.F. (1/4W)
Q673, 678	USED	USED	NONE	NONE	NONE	NONE
R853, 867	USED	USED	SHORT	SHORT	SHORT	SHORT
C014	0.01/100V	0.01/100V	0.1/100V	0.1/100V	0.1/100V	0.1/100V
EP001	USED	USED	NONE	NONE	NONE	NONE
C506, 586	100P	100P	10P	10P	10P	10P
C509, 510	5P	5P	10P	10P	10P	10P

How to Use Schematic Diagrams

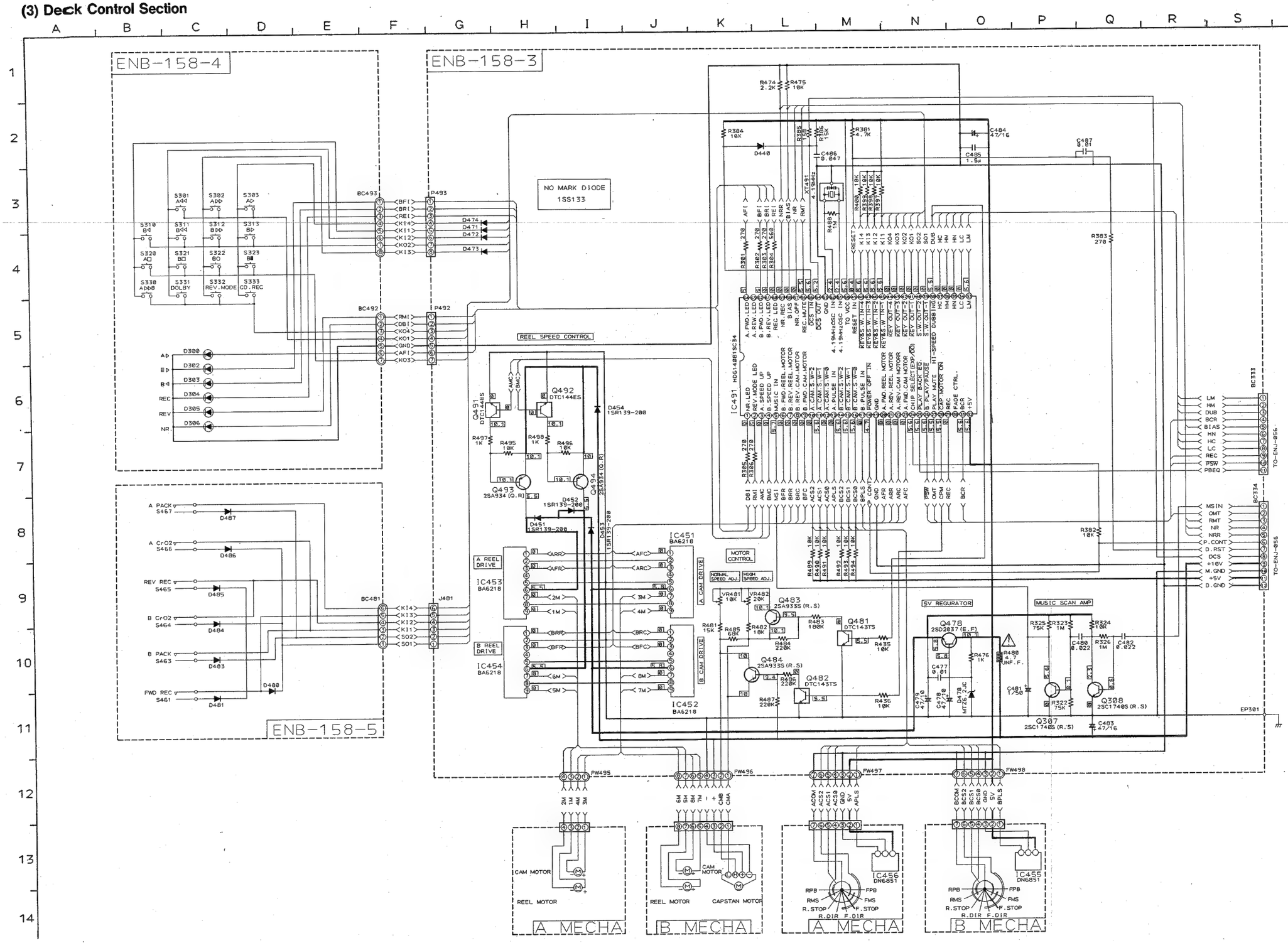
1. ——— indicates the +B line.
2. - - - indicates the –B line.
3. ▒▒▒ indicates signal path.
4. ▒▒▒ indicates recording singal path.
5. Parts marked with ⚠ and those in the shaded are ▒▒▒ are parts for safety. Be sure to use one with the specified part number.
6. This is the standard schamatic diagram. The circuits and circuit constants are subjects to change for improvement without notice.

No. 20343

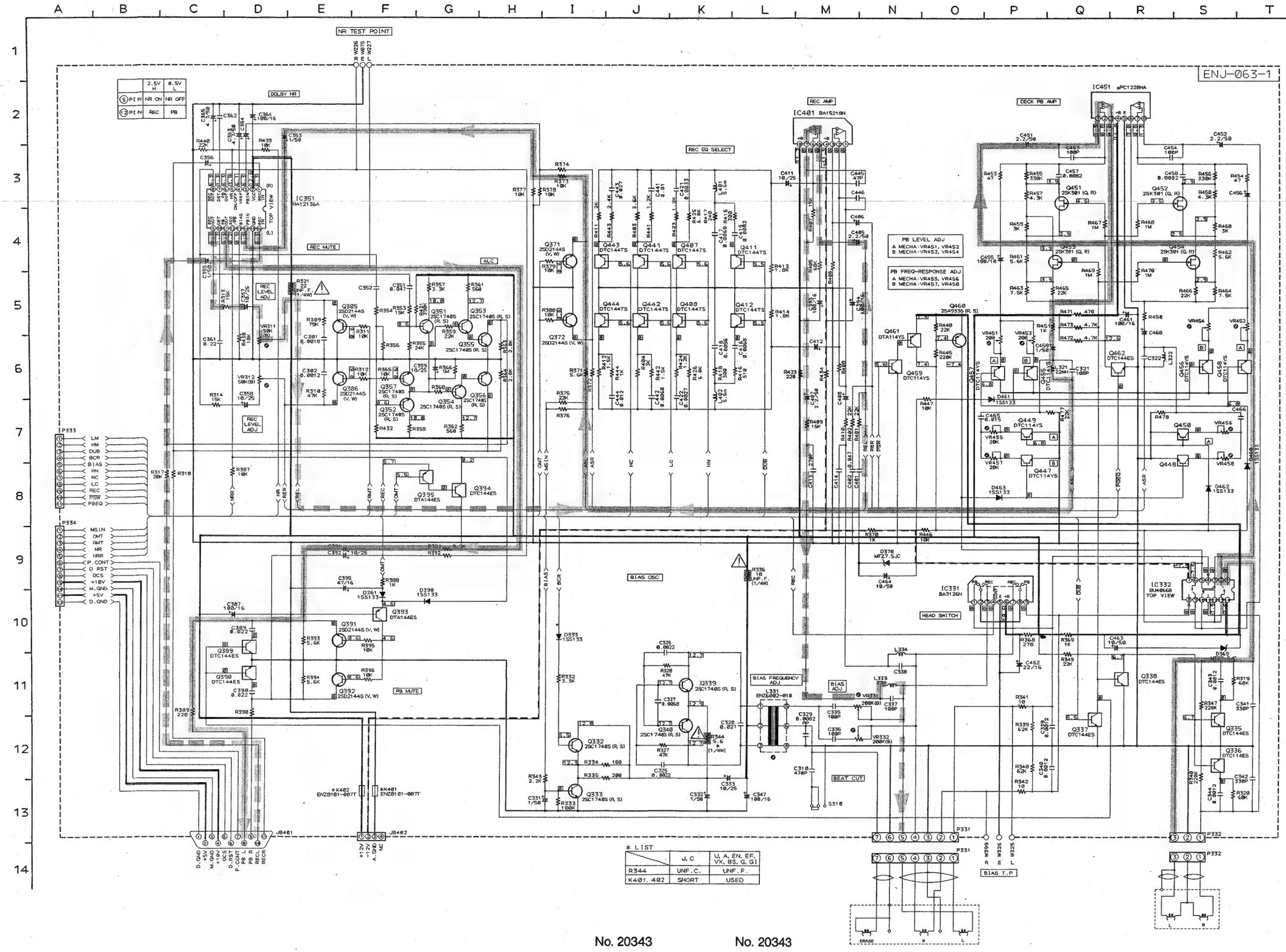
(2) System Control & SEA Section



(3) Deck Control Section

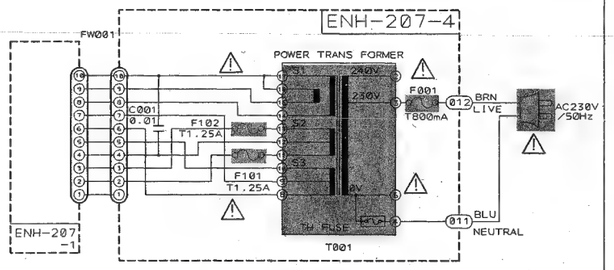


(4) Cassette Deck Section

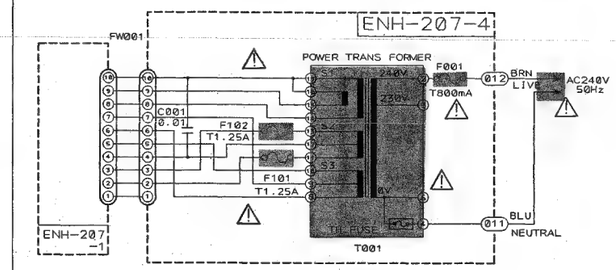


(5) Power Primary Section

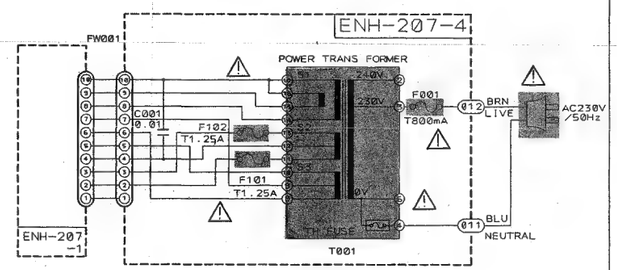
(VX, EN, EF) VX FOR EASTERN EURPOE
EN FOR SCANDINAVIA
EF FOR CONTINENTAL EUROPE



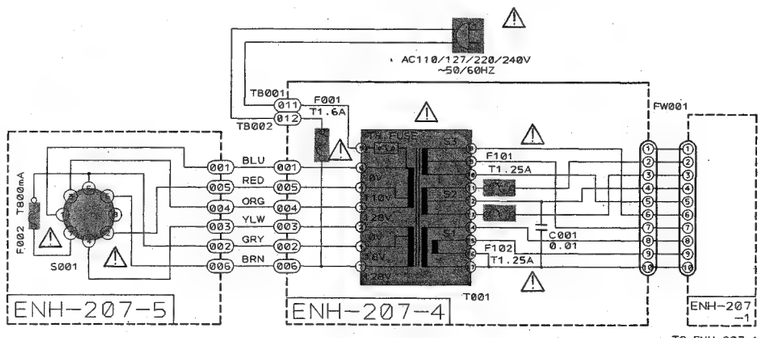
(BS, A) BS FOR U.K. A FOR AUSTRALIA



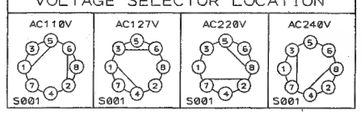
(G, GI) G FOR GERMANY GI FOR ITALY



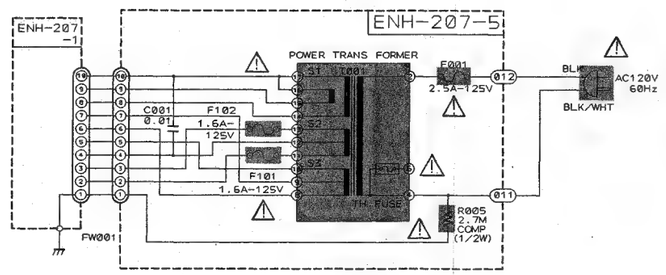
(U) FOR UNIVERSAL



VOLTAGE SELECTOR LOCATION

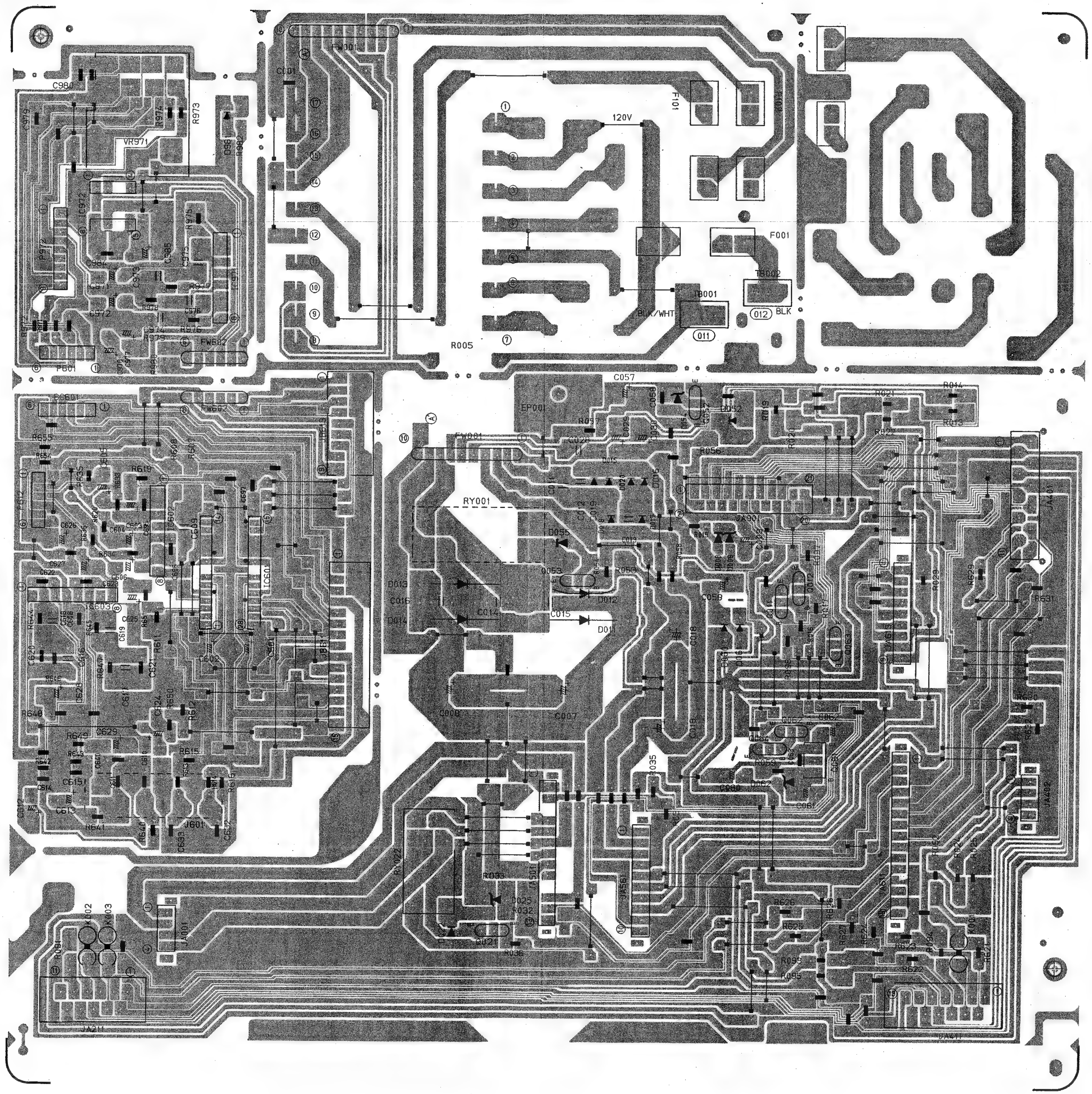


(J, C) J FOR U.S.A. C FOR CANADA

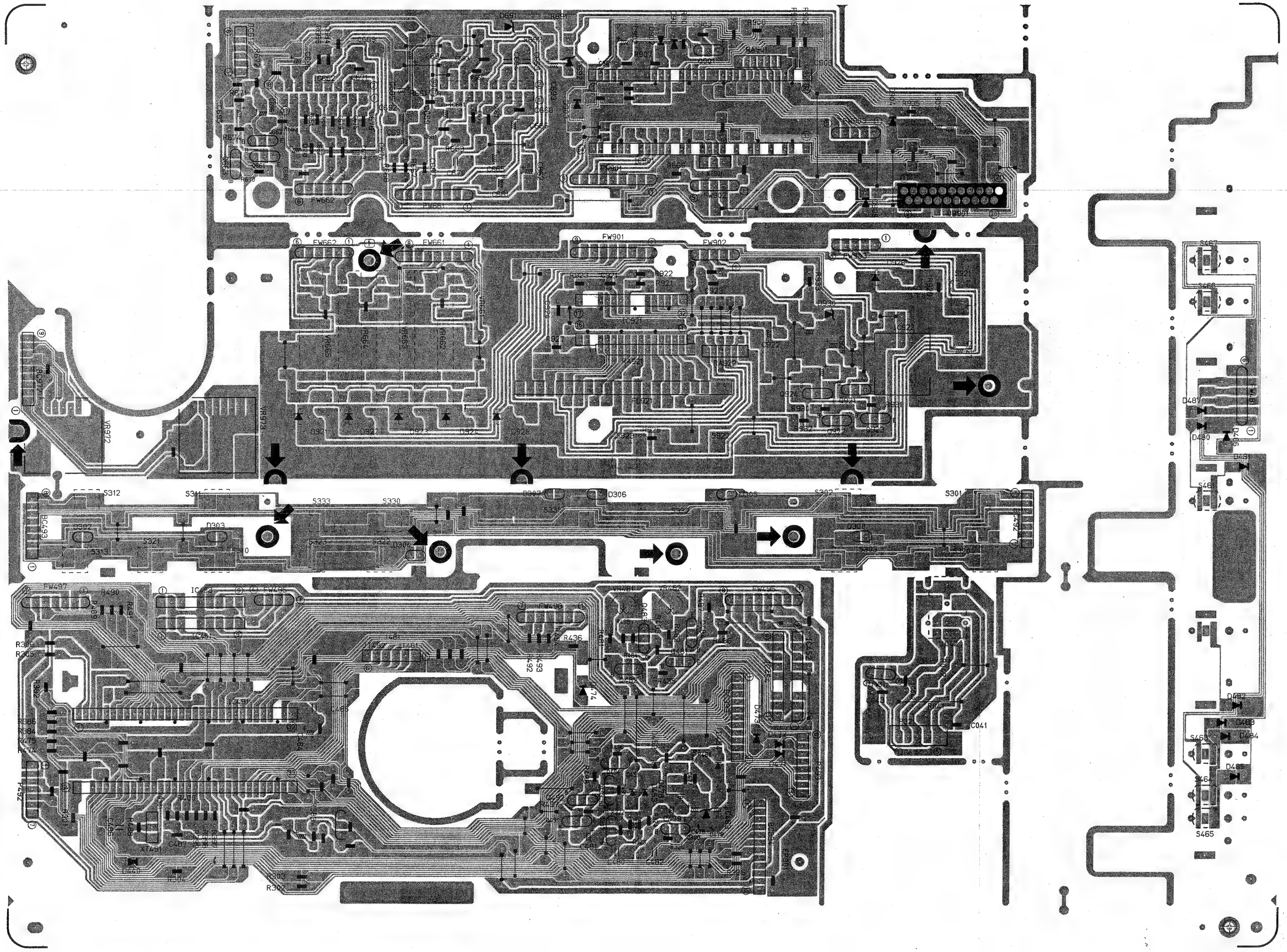


Printed Circuit Boards

(1) Input Selector & Power Supply PCB (ENH-207)



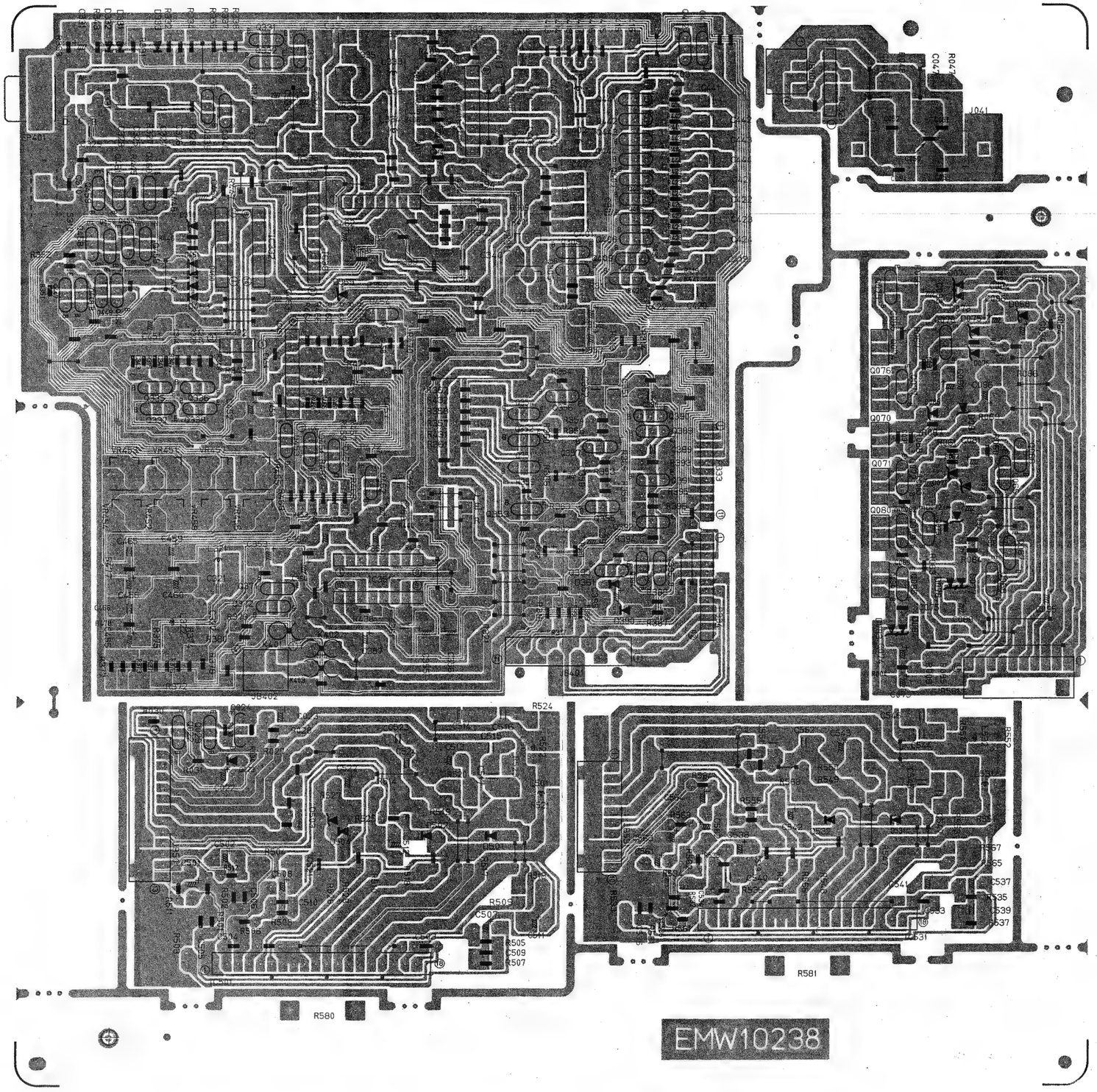
(2) Front & Deck Controller PCB (ENB-158)



No. 20343

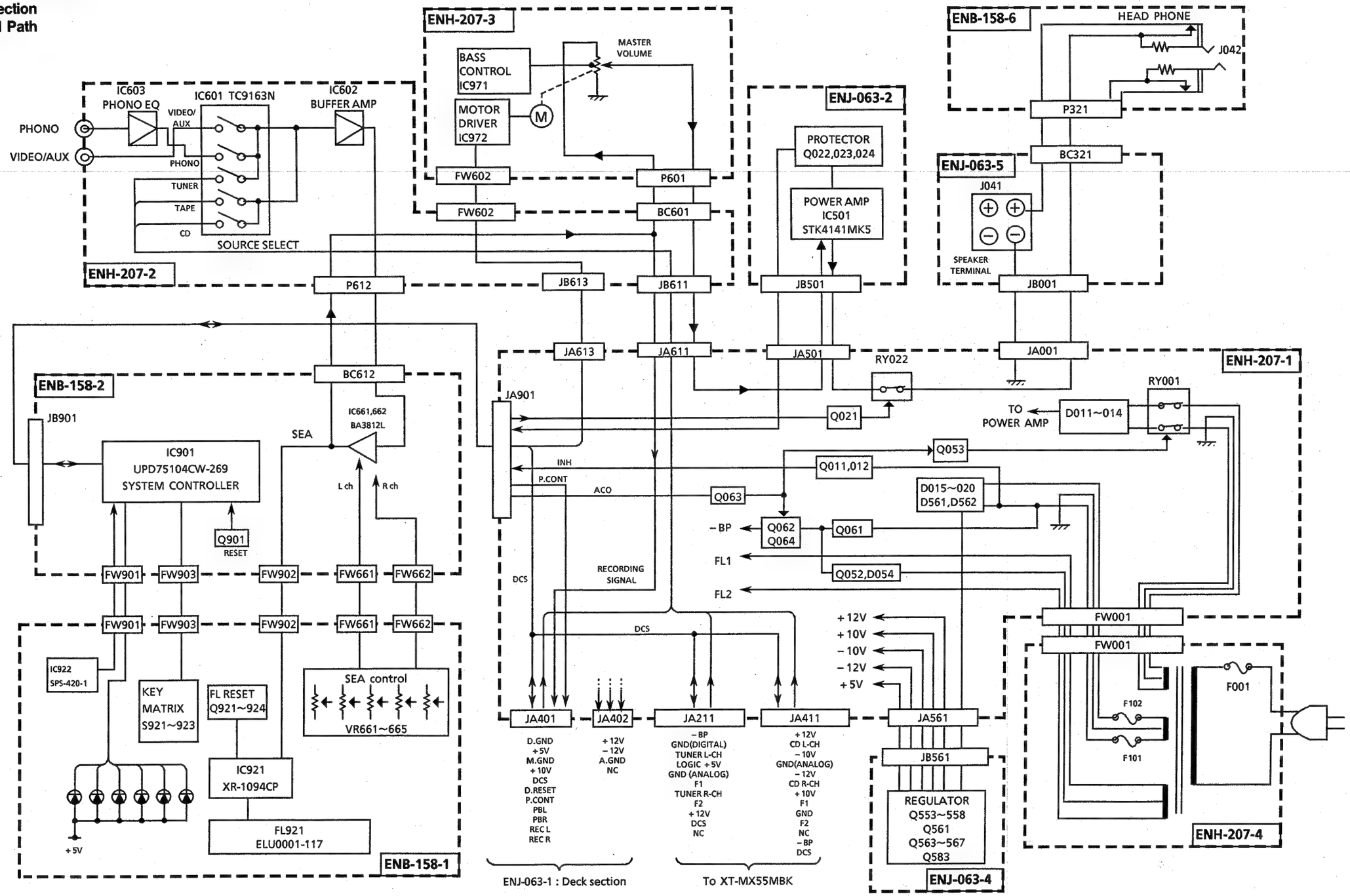
No. 20343

(3) Amp., Regulator & Cassette Deck PCB (ENJ-063)

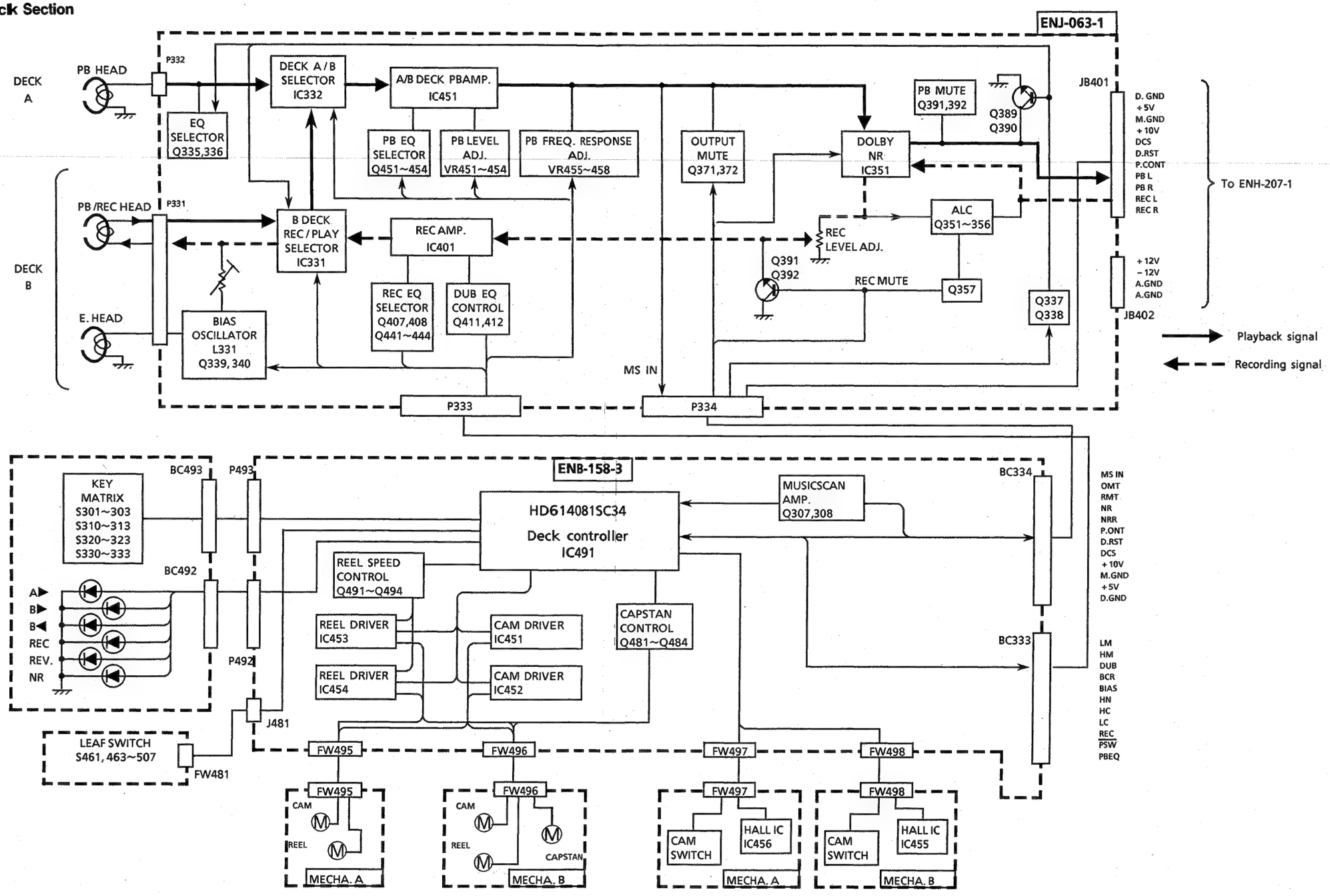


Block Diagram

Audio Section
■ Signal Path



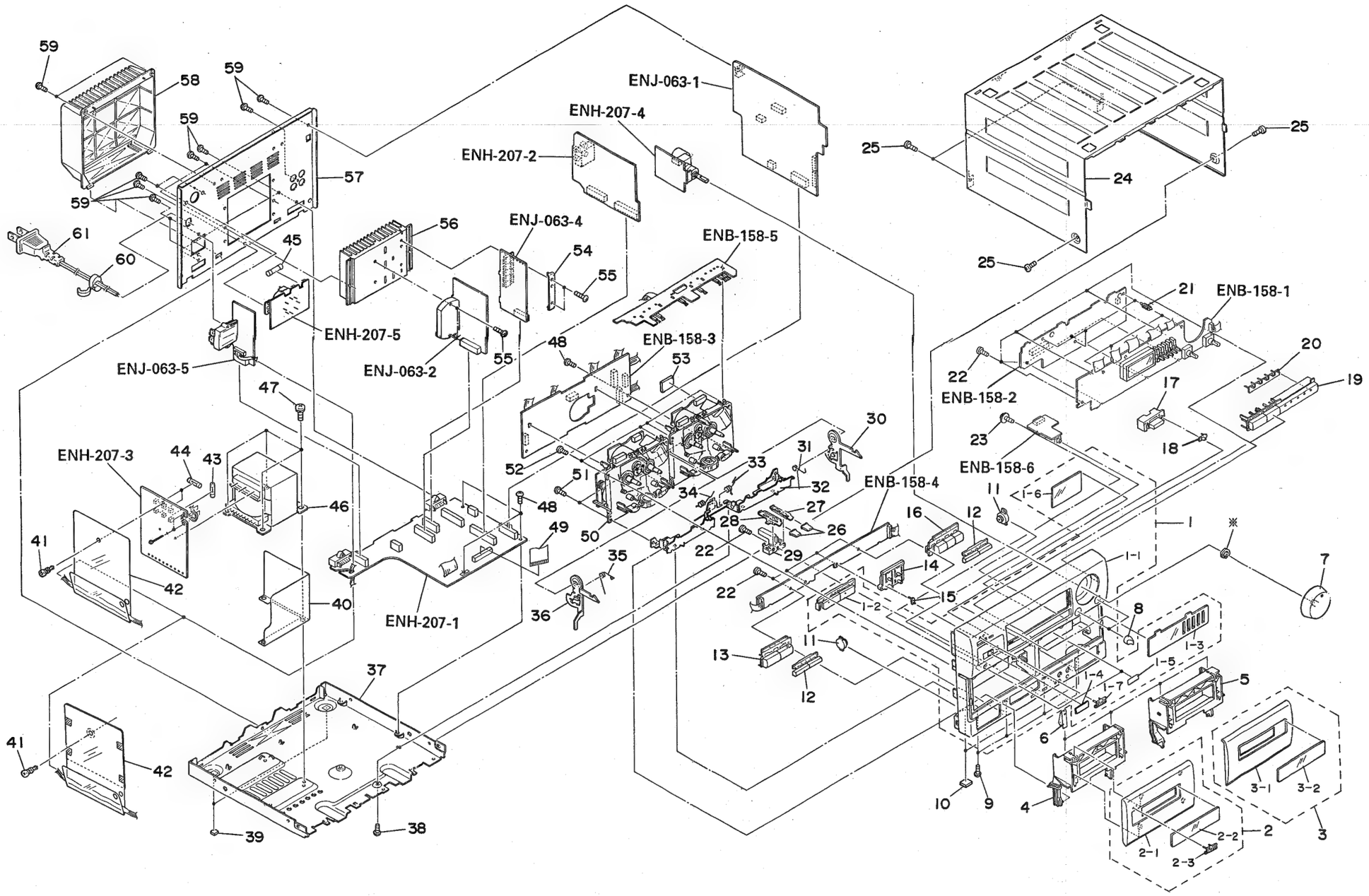
■ Cassette Deck Section



PARTS LIST

Contents

General Exploded View and Parts List



※ mark indicates an attached part.

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-DX MX55MBKES	Front Panel Ass'y	1		Except J
		EFP-DX MX55MBKJS	Front Panel Ass'y	1		J
	1-1	E1025 59-002	Front Panel	1		
	1-2	E2073 74-222	Push Button Ass'y	1	Dolby	
	1-3	E3079 88-003	Amp Window	1		J
		E3079 88-004	Amp Window	1		Except J
	1-4	E4069 78-002	Remote Plate	1		
	1-5	E6977 7-003	Reflector Plate	2		
	1-6	E7513 0-006	FL Screen	1		J
	1-7	E4069 71-001	JVC Mark	1		
	2	E20736 5-225SA	Cassette Lid Ass'y	1	A	
	2-1	E2073 65-225	Cassette Lid	1	A	
	2-2	E3079 19-221	Cassette Window	1	A	
	2-3	E4069 71-001	JVC Mark	1	A	
	3	E20736 7-222SA	Cassette Lid Ass'y	1	B	
	3-1	E2073 67-222	Cassette Lid	1	B	
	3-2	E3079 19-221	Cassette Window	1	B	
	4	E20738 1-224	Cassette Holder	1	A	
	5	E20738 2-224	Cassette Holder	1	B	
	6	E40671 3-001	Cassette Spring	4		
	7	E30654 9-001SS	Volume Knob	1		
	8	E40669 1-003	Knob	2		
	9	SBST30 06Z	Screw	4		
	10	E40685 5-006	Spacer	2	Front Foot	
	11	E30443 4-002	Dumper	2		
	12	E20738 9-222	Push Button	2	FF / Rew	
	13	E20737 1-222	Push Button Ass'y	1	A-Play	
	14	E20716 7-004	Push Button	1	Rec	
	15	E40667 3-001	Indicator	1	Rec	
	16	E20716 3-332	Push Button Ass'y	1	B-Play	
	17	E30791 7-221	Push Button	1	Power	
	18	E40693 8-221	Indicator	1	Power	
	19	E20739 5-002	Push Button	1	Source	
	20	E30796 7-001	Indicator	1	Source	
	21	E30711 2-001	Fastener	3		
	22	SDSF26 10Z	Screw	12		
	23	E40709 8-001	Special Screw	1		
	24	E20739 9-001	Metal Cover	1		
	25	SDSG30 06M	Screw	4		
	26	E40666 7-004	Push Button	2	Eject	
	27	E40666 8-004	Push Plate	1	B	
	28	E40666 8-003	Push Plate	1	A	
	29	E30759 8-002	Eject Guide	1		
	30	E30760 0-002	Eject Lever	1	B	
	31	E40667 0-001	Eject Spring	1	B	
	32	E20715 3-002	Holder Bracket	1		
	33	E40667 2-001	Holder Spring	1	B	
	34	E40667 1-001	Holder Spring	1	A	
	35	E40666 9-001	Eject Spring	1	A	
	36	E30759 9-002	Eject Lever	1	A	
	37	E10256 1-001	Chassis Base	1		
	38	SBST30 06M	Screw	1		
	39	E40685 5-007	Spacer	2	Rear Foot	
	40	E40708 6-001	Shield Cover	1	SH001	
	41	E48729-008	Plastic Rivet	1		
	42	E30808 8-001	Protect Sheet	1		Except J
		E30808 8-002	Protect Sheet	1		J
⚠	43	QMF51U1-2R5S	Fuse	1	F001	J , C
⚠		QMF51E2-1R6J1	Fuse	1	F001	U
⚠		QMF51E2-R80J1	Fuse	1	F001	Except J , C , U , BS

⚠: Safety Parts

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
⚠		QMF51E2-R80J1BS	Fuse	1	F001	BS
⚠	44	QMF51U1-1R6S	Fuse	2	F101 , F102	J , C
⚠		QMF51E2-1R25J	Fuse	2	F101 , F102	Except J , C , BS
⚠		QMF51E2-1R2J1BS	Fuse	2	F101 , F102	BS
⚠	45	QMF51E2-R80J1	Fuse	1	F002	U
⚠	46	ETP1070-25JA	Power Transformer	1	T001	J , C
⚠		ETP1070-25FA	Power Transformer	1	T001	U
⚠		ETP1070-25EA	Power Transformer	1	T001	Except J , C , U , BS
⚠		ETP1070-25EABS	Power Transformer	1	T001	BS
	47	E65389-002	Special Screw	4		
	48	SBSG3008CC	Screw	4		
	49	EWR121K-34TT	FFC Cable	1	FC901	
	50	————	Cassette Mechanism	1	See page 2-7	
	51	SBST3008C	Screw	4		
	52	SBSF3010C	Screw	4		
	53	EXO014008R60S13	Spacer	1		
	54	E406969-221	Leaf Spring	1		
	55	SBSG3014CC	Screw	4		
	56	E307908-221	Heat Sink	1		
	57	E207418-006	Rear Panel	1		J
		E207418-007	Rear Panel	1		C
		E207418-008	Rear Panel	1		U
		E207418-009	Rear Panel	1		A , BS
		E207418-010	Rear Panel	1		EF , EN , VX , G , GI
	58	E207356-223	Rear Cover	1		
	59	E73273-003	Special Screw	11		Except U
		E73273-003	Special Screw	13		U
⚠	60	QHS3876-162	Cord Stopper	1		Except BS
⚠		QHS3876-162BS	Cord Stopper	1		BS
⚠	61	QMP1D00-200H	Power Cord	1		J , C
⚠		QMP7520-200	Power Cord	1		U
⚠		QMP3900-200	Power Cord	1		EN , EF , VX , G , GI
⚠		QMP2560-244	Power Cord	1		A
⚠		QMP9017-008BS	Power Cord	1		BS
	—	E307570-001	Number Label	1		J
	—	E61029-009	Number Label	1		Except J
	—	E45858-002	CSA Label	1		C
	—	E70027-001	Approval Label	1		EN
	—	QZL1031-101	SEV Label	1		EF
	—	E407091-054	FTZ Label	1		G
	—	E75803-001	Fuse Caution Label	1		J
	—	QZL1001-001	UL Label	1		J
	—	E75804-001	Caution Label	1		C

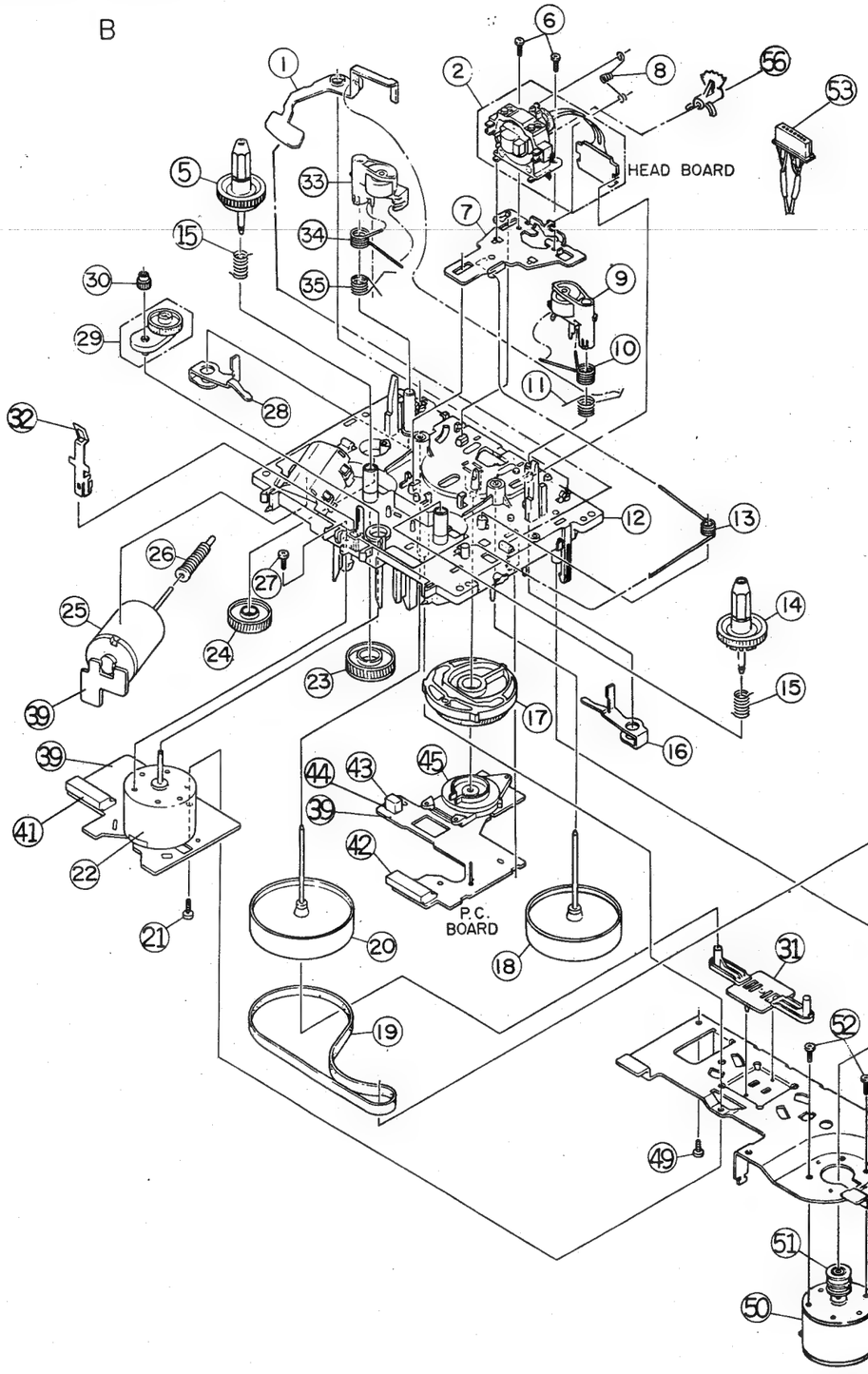
⚠: Safety Parts

The Marks Designated Areas

J·····the U.S.A.
C·····Canada
A·····Australia
G·····Germany
GI·····Italy
EN·····Scandinavia
EF·····Continental Europe
BS·····the U.K.
U·····Universal Type
VX·····Eastern Europe
No mark indicates all areas.

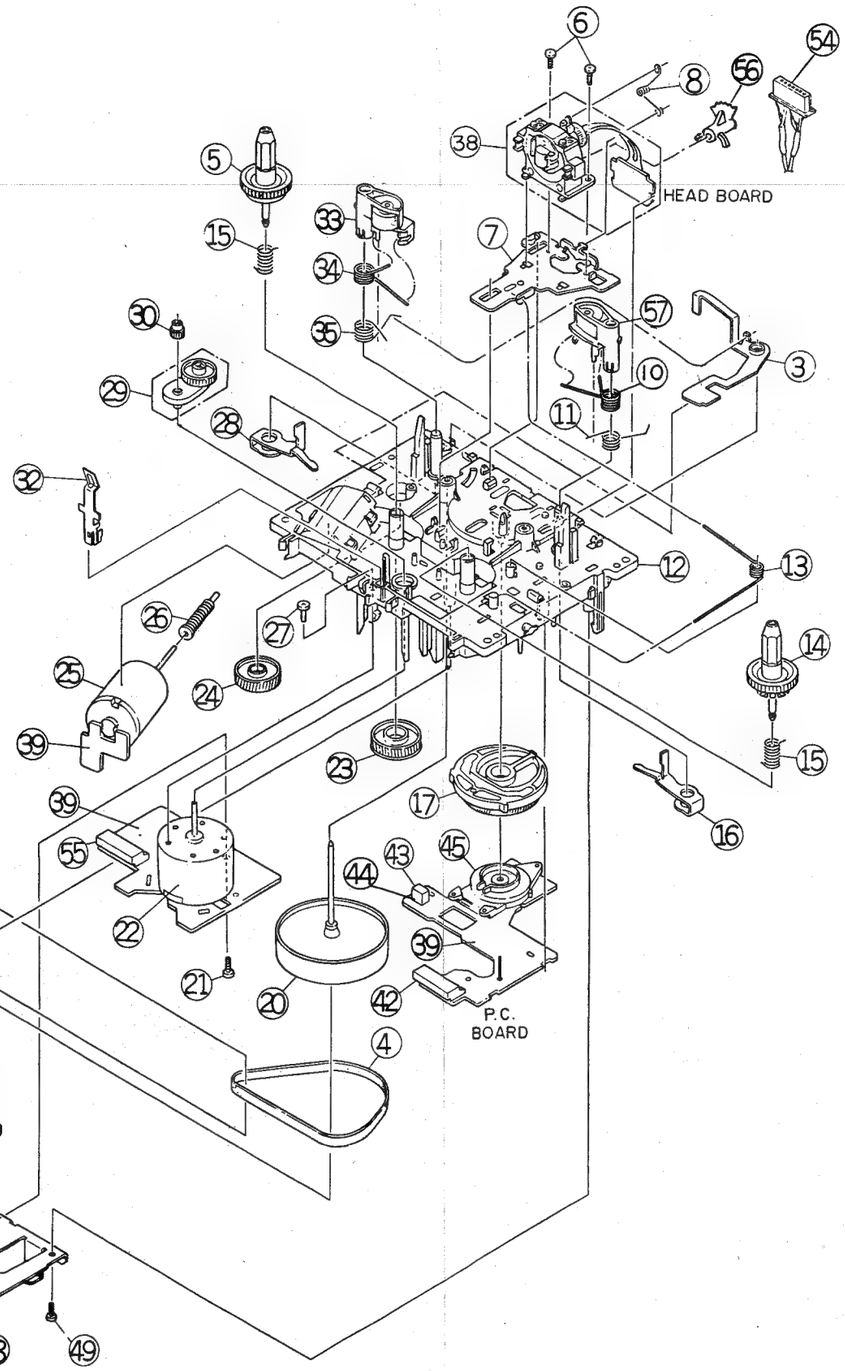
Cassette Mechanism Ass'y and Parts List

B



(No. 20343) 2-7

A



2-8 (No. 20343)

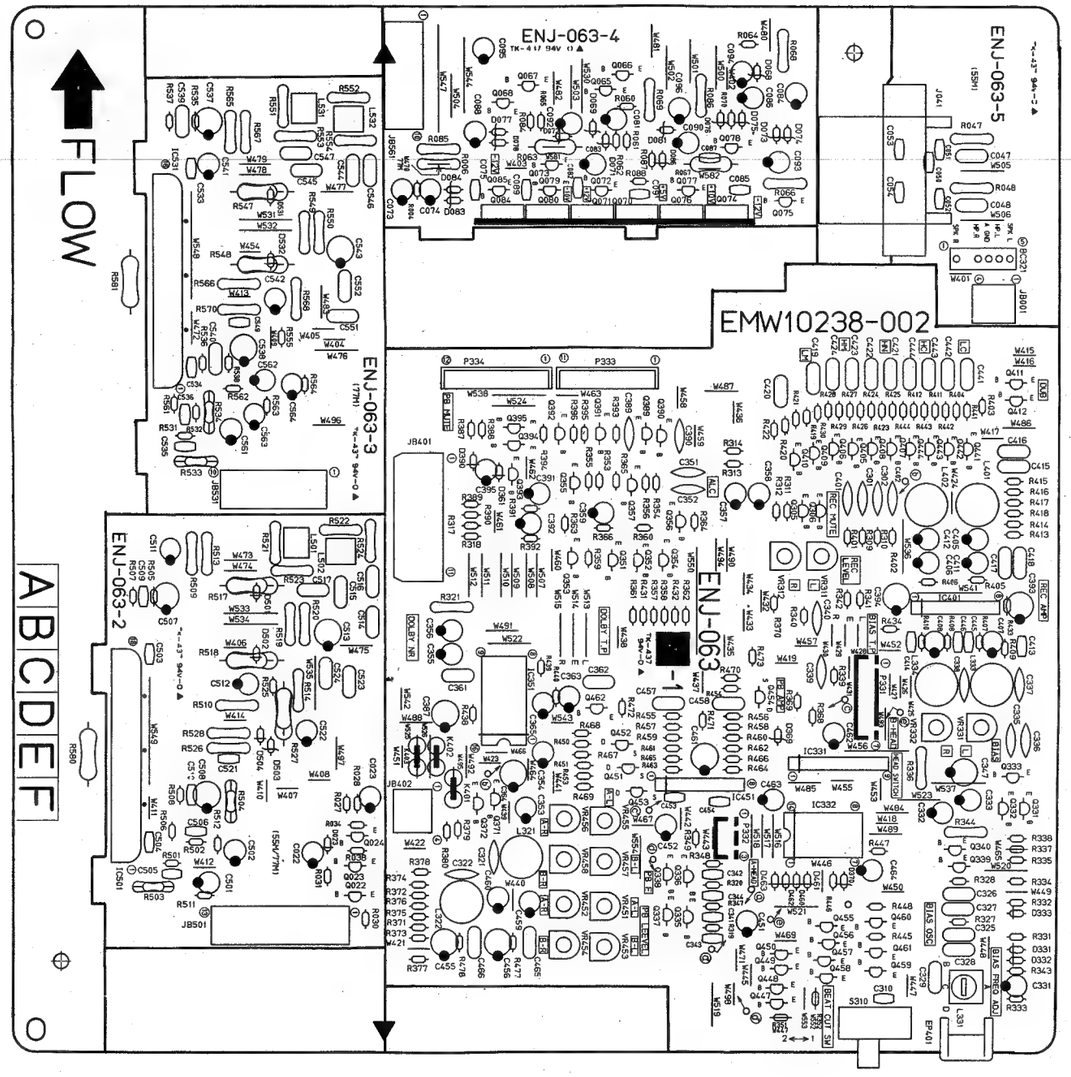
■ Parts List (Cassette Mechanism)

Item	Part Number	Part Name	Q'ty	Description	Areas
1	VKL7130-001	Eject Safety	1	B Mechanism	
2	VKS3551-00B	Head Mount Ass'y	1	B Mechanism	
3	VKL7131-001	Eject Safety	1	A Mechanism	
4	VKB3001-052	Belt	1	A Mechanism	
5	VKS5321-00D	Reel Ass'y	2	Right	
6	SDST2004Z	Screw	4	Head Mount Ass'y	
7	VKL6942-00E	Head Base Ass'y	2		
8	VKW4994-001	Head Spring	2		
9	VKP4221-00B	Pinch Roller Ass'y	1	B Mechanism (Left)	
10	VKW4982-001	Torsion Spring	2	B Mechanism (Left)	
11	VKW4933-004	Torsion Spring	2	Left	
12	VKS1112-30H	Chassis Base Ass'y	2		
13	VKW4930-002	Return Spring	2		
14	VKS3480-005	Reel Ass'y	2	Left	
15	VKW4928-003	B.T. Spring	4	Reel Ass'y	
16	VKL6940-002	Pinch Roller Lever	2	Left	
17	VKS2209-005	Controller Cam	2		
18	VKF3186-00C	Flywheel Ass'y	1	B Mechanism (Left)	
19	VKB3001-048	Belt	1	B Mechanism	
20	VKF3184-00C	Flywheel Ass'y	2	Right	
21	SDSF2608Z	Screw	2		
22	MMN-6F4RA38	D.C. Motor	2	Reel	
23	VKS5331-002	Gear (6)	2		
24	VKS5330-004	Gear (5)	2		
25	MXN-13FB12F	D.C. Motor	2	Cam	
26	VKS5329-002	Gear (4)	2		
27	SDSP2605Z	Screw	2		
28	VKL6939-002	Pinch Roller Lever	2	Right	
29	VKS5325-00F	FR Arm Ass'y	2		
30	VKS5328-002	Reel Motor Gear	2		
31	VKS5327-003	Trust Plate	2		
32	VKY4628-002	Pack Spring	2		
33	VKP4219-00C	Pinch Roller Ass'y	2	Right	
34	VKW4981-001	Torsion Spring	2	Right	
35	VKW4932-004	Torsion Spring	2	Right	
38	VKS3550-00B	Head Mount Ass'y	1	A Mechanism	
39	VMW2345-002	Printed Board	2		
41	VMC0107-R08	Connector	1	B Mechanism	
42	VMC0107-R07	Connector	2		
43	DN6851A	Hall IC	2		
44	VKS3487-001	IC Holder	2		
45	VKS3587-00A	Cam Switch Ass'y	2		
48	VKM3419-00E	FM Bracket	1		
49	SDSF2605Z	Screw	4		
50	MMI-6H2LWSK	Motor	1	Capstan	
51	VKR4632-002	Motor Pulley	1		
52	SPSP2603Z	Screw	2		
53	VDM007P-040I	Head Wire	1	B Mechanism	
54	VDM003P-040I	Head Wire	1	A Mechanism	
55	VMC0107-R04	Connector	1	A Mechanism	
56	VKS3485-002	Head Gear	2	A Mechanism (Left)	
57	VKP3118-002	Pinch Roller	1		

Printed Circuit Board Ass'y and Parts List

■ **ENJ-063 ☐ Amp. , Regulator & Cassette Deck PC Board Ass'y**

Note : ENJ-063 ☐ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENJ-063 [B]	the U.S.A., Canada
ENJ-063 [C]	Australia, Universal Type, Continental Europe, Scandinavia, the U.K., Eastern Europe
ENJ-063 [D]	Germany, Italy

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q022	2SC1740S(R,S)	SILICON	ROHM	
	Q023	2SC1740S(R,S)	SILICON	ROHM	
	Q024	2SA733A(P,Q)	SILICON	NEC	
	Q065	DTC144ES	SILICON	ROHM	
	Q066	DTA114YS	SILICON	ROHM	
	Q067	DTA144ES	SILICON	ROHM	
	Q068	DTC114YS	SILICON	ROHM	
	Q070	2SD2061(E,F)	SILICON	ROHM	
	Q071	2SD2061(E,F)	SILICON	ROHM	
	Q072	2SC1740S(R,S)	SILICON	ROHM	
	Q073	2SC1740S(R,S)	SILICON	ROHM	B
	Q076	2SD2061(E,F)	SILICON	ROHM	
	Q077	2SC1740S(R,S)	SILICON	ROHM	
	Q078	2SC1740S(R,S)	SILICON	ROHM	B
	Q079	2SA564A(Q,R)	SILICON	MATSUSHITA	
	Q080	2SB1187(E,F)	SILICON	ROHM	
	Q084	2SB1187(E,F)	SILICON	ROHM	
	Q085	2SA564A(Q,R)	SILICON	MATSUSHITA	
	Q305	2SD2144S(VW)	SILICON	ROHM	
	Q306	2SD2144S(VW)	SILICON	ROHM	
	Q332	2SC1740S(R,S)	SILICON	ROHM	
	Q333	2SC1740S(R,S)	SILICON	ROHM	
	Q335	DTC144ES	SILICON	ROHM	
	Q336	DTC144ES	SILICON	ROHM	
	Q337	DTC144ES	SILICON	ROHM	
	Q338	DTC144ES	SILICON	ROHM	
	Q339	2SC1740S(R,S)	SILICON	ROHM	
	Q340	2SC1740S(R,S)	SILICON	ROHM	
	Q351	2SC1740S(R,S)	SILICON	ROHM	
	Q352	2SC1740S(R,S)	SILICON	ROHM	
	Q353	2SC1740S(R,S)	SILICON	ROHM	
	Q354	2SC1740S(R,S)	SILICON	ROHM	
	Q355	2SC1740S(R,S)	SILICON	ROHM	
	Q356	2SC1740S(R,S)	SILICON	ROHM	
	Q357	2SC1740S(R,S)	SILICON	ROHM	
	Q371	2SD2144S(VW)	SILICON	ROHM	
	Q372	2SD2144S(VW)	SILICON	ROHM	
	Q389	DTC144ES	SILICON	ROHM	
	Q390	DTC144ES	SILICON	ROHM	
	Q391	2SD2144S(VW)	SILICON	ROHM	
	Q392	2SD2144S(VW)	SILICON	ROHM	
	Q393	DTA144ES	SILICON	ROHM	
	Q394	DTC144ES	SILICON	ROHM	
	Q395	DTA144ES	SILICON	ROHM	
	Q407	DTC144TS	SILICON	ROHM	
	Q408	DTC144TS	SILICON	ROHM	
	Q411	DTC144TS	SILICON	ROHM	
	Q412	DTC144TS	SILICON	ROHM	
	Q441	DTC144TS	SILICON	ROHM	
	Q442	DTC144TS	SILICON	ROHM	
	Q443	DTC144TS	SILICON	ROHM	
	Q444	DTC144TS	SILICON	ROHM	
	Q447	DTC114YS	SILICON	ROHM	
	Q448	DTC114YS	SILICON	ROHM	
	Q449	DTC114YS	SILICON	ROHM	
	Q450	DTC114YS	SILICON	ROHM	
	Q451	2SK301(Q,R)	F.E.T	MATSUSHITA	
	Q452	2SK301(Q,R)	F.E.T	MATSUSHITA	
	Q453	2SK301(Q,R)	F.E.T	MATSUSHITA	
	Q454	2SK301(Q,R)	F.E.T	MATSUSHITA	
	Q455	DTC114YS	SILICON	ROHM	
	Q456	DTC114YS	SILICON	ROHM	
	Q457	DTC114YS	SILICON	ROHM	
	Q458	DTC114YS	SILICON	ROHM	
	Q459	DTC114YS	SILICON	ROHM	
	Q460	2SA933S(R,S)	SILICON	ROHM	
	Q461	DTA114YS	SILICON	ROHM	
	Q462	DTC144ES	SILICON	ROHM	

⚠ : SAFETY PARTS

I. C. s

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	IC331	BA3126N	I.C.	ROHM	
	IC332	BU4066B	I.C.	ROHM	
	IC351	HA12136A	I.C.	HITACHI	
	IC401	BA15218N	I.C.	ROHM	
	IC451	UPC1228HA	I.C.	NEC	
	IC501	STK4141MK5	I.C.	SANYO	

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D023	1SS133	SILICON	ROHM	
	D071	RD13JSB3	ZENER	NEC	
	D072	MTZ13JC	ZENER	ROHM	
	D075	MTZ11JC	ZENER	ROHM	
	D076	MTZ12JC	ZENER	ROHM	
	D077	MTZ11JC	ZENER	ROHM	
	D078	MTZ12JC	ZENER	ROHM	
	D081	MTZ6.8JC	ZENER	ROHM	
	D083	MTZ13JC	ZENER	ROHM	
	D084	RD13JSB3	ZENER	NEC	
	D086	MTZ6.2JC	ZENER	ROHM	
	D333	1SS133	SILICON	ROHM	
	D361	1SS133	SILICON	ROHM	
	D369	MTZ7.5JC	ZENER	ROHM	
	D370	MTZ7.5JC	ZENER	ROHM	
	D390	1SS133	SILICON	ROHM	
	D460	1SS133	SILICON	ROHM	
	D461	1SS133	SILICON	ROHM	
	D462	1SS133	SILICON	ROHM	
	D463	1SS133	SILICON	ROHM	
	D501	1SS133	SILICON	ROHM	
	D502	1SS133	SILICON	ROHM	
	D503	MTZ12JC	ZENER	ROHM	
	D504	1SS133	SILICON	ROHM	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C022	QETB1CM-226	22MF	16V	ELECTRO	
	C023	QETB1AM-476	47MF	10V	ELECTRO	
	C047	QFLB1HJ-103	0.01MF	50V	MYLAR	C
	C047	QFLB1HJ-103	0.01MF	50V	MYLAR	D
	C048	QFLB1HJ-103	0.01MF	50V	MYLAR	C
	C048	QFLB1HJ-103	0.01MF	50V	MYLAR	D
	C051	QCBB1HK-221	220PF	50V	CERAMIC	C
	C051	QCBB1HK-221	220PF	50V	CERAMIC	D
	C052	QCBB1HK-221	220PF	50V	CERAMIC	C
	C052	QCBB1HK-221	220PF	50V	CERAMIC	D
	C053	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C054	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C073	QETB1EM-226	22MF	25V	ELECTRO	
	C074	QETB1EM-226	22MF	25V	ELECTRO	
	C075	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C081	QETB1EM-226	22MF	25V	ELECTRO	
	C082	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C083	QETB1EM-226	22MF	25V	ELECTRO	
	C086	QETB1EM-226	22MF	25V	ELECTRO	
	C087	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C088	QETB1EM-226	22MF	25V	ELECTRO	
	C089	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C090	QETB1EM-226	22MF	25V	ELECTRO	
	C091	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C092	QETB1EM-226	22MF	25V	ELECTRO	
	C094	QETB1EM-226	22MF	25V	ELECTRO	
	C095	QETB1EM-226	22MF	25V	ELECTRO	
	C096	QETB1EM-226	22MF	25V	ELECTRO	
	C301	QCY21HK-182	1800PF	50V	CERAMIC	
	C302	QCY21HK-182	1800PF	50V	CERAMIC	
	C310	QCBB1HK-471	470PF	50V	CERAMIC	
	C321	QCY21HK-101	100PF	50V	CERAMIC	
	C322	QCY21HK-101	100PF	50V	CERAMIC	
	C325	QFLB1HJ-222	2200PF	50V	MYLAR	
	C326	QFLB1HJ-222	2200PF	50V	MYLAR	
	C327	QFLB1HJ-682	6800PF	50V	MYLAR	
	C328	QFLB1HJ-273	0.027MF	50V	MYLAR	
	C329	QFP81HG-822	8200PF	50V	POLY	
	C331	QETB1HM-105	1MF	50V	ELECTRO	
	C332	QETB1HM-105	1MF	50V	ELECTRO	
	C333	QETB1EM-106	10MF	25V	ELECTRO	
	C335	QCS21HJ-101	100PF	50V	CERAMIC	
	C336	QCS21HJ-101	100PF	50V	CERAMIC	
	C337	QCS21HJ-101	100PF	50V	CERAMIC	
	C338	QCS21HJ-101	100PF	50V	CERAMIC	
	C339	QCY21HK-122	1200PF	50V	CERAMIC	
	C340	QCY21HK-122	1200PF	50V	CERAMIC	
	C341	QCBB1HK-331	330PF	50V	CERAMIC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C342	QCBB1HK-331	330PF 50V CERAMIC	
	C343	QCXB1CM-122	1200PF 16V CERAMIC	
	C344	QCXB1CM-122	1200PF 16V CERAMIC	
	C347	QETB1CM-107	100MF 16V ELECTRO	
	C351	QCF21HP-473	0.047MF 50V CERAMIC	
	C352	QCF21HP-473	0.047MF 50V CERAMIC	
	C353	QETB1HM-105	1MF 50V ELECTRO	
	C354	QETB1HM-105	1MF 50V ELECTRO	
	C355	QETB1HM-105	1MF 50V ELECTRO	
	C356	QETB1HM-105	1MF 50V ELECTRO	
	C357	QETB1EM-106	10MF 25V ELECTRO	
	C358	QETB1EM-106	10MF 25V ELECTRO	
	C359	QETB1EM-106	10MF 25V ELECTRO	
	C361	QFLB1HJ-224	0.22MF 50V MYLAR	
	C362	QFLB1HJ-224	0.22MF 50V MYLAR	
	C363	QETB1HM-475	4.7MF 50V ELECTRO	
	C364	QETB1CM-107	100MF 16V ELECTRO	
	C365	QETB1HM-475	4.7MF 50V ELECTRO	
	C387	QETB1CM-107	100MF 16V ELECTRO	
	C389	QCF21HP-223	0.022MF 50V CERAMIC	
	C390	QCF21HP-223	0.022MF 50V CERAMIC	
	C391	QETB1EM-106	10MF 25V ELECTRO	
	C392	QETB1EM-106	10MF 25V ELECTRO	
	C393	QETB1CM-107	100MF 16V ELECTRO	
	C394	QETB1CM-107	100MF 16V ELECTRO	
	C395	QETB1CM-476	47MF 16V ELECTRO	
	C401	QCF21HP-473	0.047MF 50V CERAMIC	
	C402	QCF21HP-473	0.047MF 50V CERAMIC	
	C405	QETB1HM-225	2.2MF 50V ELECTRO	
	C406	QETB1HM-225	2.2MF 50V ELECTRO	
	C407	QETB1HM-225	2.2MF 50V ELECTRO	
	C408	QETB1HM-225	2.2MF 50V ELECTRO	
	C411	QETB1EM-106	10MF 25V ELECTRO	
	C412	QETB1EM-106	10MF 25V ELECTRO	
	C413	QCBB1HK-271	270PF 50V CERAMIC	
	C414	QCBB1HK-271	270PF 50V CERAMIC	
	C415	QFLB1HJ-822	8200PF 50V MYLAR	
	C416	QFLB1HJ-822	8200PF 50V MYLAR	
	C417	QFLB1HJ-682	6800PF 50V MYLAR	
	C418	QFLB1HJ-682	6800PF 50V MYLAR	
	C421	QFLB1HJ-332	3300PF 50V MYLAR	
	C422	QFLB1HJ-332	3300PF 50V MYLAR	
	C441	QFLB1HJ-103	0.01MF 50V MYLAR	
	C442	QFLB1HJ-103	0.01MF 50V MYLAR	
	C443	QFLB1HJ-273	0.027MF 50V MYLAR	
	C444	QFLB1HJ-273	0.027MF 50V MYLAR	
	C445	QCSB1HJ-470	47PF 50V CERAMIC	
	C446	QCSB1HJ-470	47PF 50V CERAMIC	
	C451	QETB1HM-225	2.2MF 50V ELECTRO	
	C452	QETB1HM-225	2.2MF 50V ELECTRO	
	C453	QCBB1HK-101	100PF 50V CERAMIC	
	C454	QCBB1HK-101	100PF 50V CERAMIC	
	C455	QETB1AM-107	100MF 10V ELECTRO	
	C456	QETB1AM-107	100MF 10V ELECTRO	
	C457	QFLB1HJ-822	8200PF 50V MYLAR	
	C458	QFLB1HJ-822	8200PF 50V MYLAR	
	C459	QETB1HM-105	1MF 50V ELECTRO	
	C460	QETB1HM-105	1MF 50V ELECTRO	
	C461	QETB1CM-107	100MF 16V ELECTRO	
	C462	QETB1CM-226	22MF 16V ELECTRO	
	C463	QETB1HM-106	10MF 50V ELECTRO	
	C464	QETB1HM-106	10MF 50V ELECTRO	
	C465	QFLB1HJ-153	0.015MF 50V MYLAR	
	C466	QFLB1HJ-153	0.015MF 50V MYLAR	
	C501	EEZ5009-106	10MF ELECTRO	
	C502	EEZ5009-106	10MF ELECTRO	
	C503	QCBB1HK-101	100PF 50V CERAMIC	
	C504	QCBB1HK-101	100PF 50V CERAMIC	
	C505	QCBB1HK-101	100PF 50V CERAMIC	
	C506	QCBB1HK-101	100PF 50V CERAMIC	
	C507	QETB1HM-107	100MF 50V ELECTRO	
	C508	QETB1HM-107	100MF 50V ELECTRO	
	C509	QCT30CH-5R6	5.6PF 50V CERAMIC	
	C510	QCT30CH-5R6	5.6PF 50V CERAMIC	
	C511	QETB1HM-226	22MF 50V ELECTRO	
	C512	QETB1HM-226	22MF 50V ELECTRO	
	C513	QETB1HM-476	47MF 50V ELECTRO	
	C514	QFLB1HJ-104	0.1MF 50V MYLAR	
	C515	QFLB1HJ-104	0.1MF 50V MYLAR	
	C516	QFLB1HJ-104	0.1MF 50V MYLAR	
	C517	QFLB1HJ-104	0.1MF 50V MYLAR	
	C521	QCBB1HK-681	680PF 50V CERAMIC	C
	C521	QCBB1HK-681	680PF 50V CERAMIC	D
	C522	QETB1CM-226	22MF 16V ELECTRO	
	C523	QFLB1HJ-473	0.047MF 50V MYLAR	
	C524	QFLB1HJ-473	0.047MF 50V MYLAR	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R004	QRD167J-222	2.2K 1/6W CARBON	
⚠	R006	QRD14CJ-2R7S	2.7 1/4W UNF.CARBON	
	R027	QRD167J-104	100K 1/6W CARBON	
	R028	QRD167J-823	82K 1/6W CARBON	
	R030	QRD167J-473	47K 1/6W CARBON	
	R031	QRD167J-682	6.8K 1/6W CARBON	
	R034	QRD167J-104	100K 1/6W CARBON	
	R038	QRD167J-104	100K 1/6W CARBON	
⚠	R047	QRD14CJ-100S	10 1/4W UNF.CARBON	C
⚠	R047	QRD14CJ-100S	10 1/4W UNF.CARBON	D
⚠	R048	QRD14CJ-100S	10 1/4W UNF.CARBON	C
⚠	R048	QRD14CJ-100S	10 1/4W UNF.CARBON	D
	R060	QRD167J-103	10K 1/6W CARBON	
	R061	QRD167J-152	1.5K 1/6W CARBON	
	R062	QRD167J-471	470 1/6W CARBON	
⚠	R063	QRX012J-R68AM	0.68 1W M.FILM	B
	R065	QRD167J-103	10K 1/6W CARBON	
⚠	R067	QRX012J-R47AM	0.47 1W M.FILM	B
⚠	R068	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
⚠	R069	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
	R070	QRD167J-332	3.3K 1/6W CARBON	
	R084	QRD167J-332	3.3K 1/6W CARBON	
⚠	R085	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
⚠	R086	QRD14CJ-1R0S	1 1/4W UNF.CARBON	
	R087	QRD167J-103	10K 1/6W CARBON	
	R088	QRD167J-103	10K 1/6W CARBON	
	R309	QRD167J-753	75K 1/6W CARBON	
	R310	QRD167J-753	75K 1/6W CARBON	
	R311	QRD167J-103	10K 1/6W CARBON	
	R312	QRD167J-103	10K 1/6W CARBON	
	R313	QRD167J-153	15K 1/6W CARBON	
	R314	QRD167J-153	15K 1/6W CARBON	
	R317	QRD167J-203	20K 1/6W CARBON	
	R318	QRD167J-203	20K 1/6W CARBON	
	R319	QRD167J-683	68K 1/6W CARBON	
	R320	QRD167J-683	68K 1/6W CARBON	
⚠	R321	QRZ0077-220	22 1/4W FUSIBLE	
	R327	QRD167J-473	47K 1/6W CARBON	
	R328	QRD167J-473	47K 1/6W CARBON	
	R332	QRD167J-332	3.3K 1/6W CARBON	
	R333	QRD167J-104	100K 1/6W CARBON	
	R334	QRD167J-181	180 1/6W CARBON	
	R335	QRD167J-201	200 1/6W CARBON	
⚠	R336	QRZ0077-100	10 1/4W FUSIBLE	
	R339	QRD167J-623	62K 1/6W CARBON	
	R340	QRD167J-623	62K 1/6W CARBON	
	R341	QRD167J-100	10 1/6W CARBON	
	R342	QRD167J-100	10 1/6W CARBON	
	R343	QRD167J-222	2.2K 1/6W CARBON	
⚠	R344	QRZ0077-5R6	5.6 1/4W FUSIBLE	
	R347	QRD167J-224	220K 1/6W CARBON	
	R348	QRD167J-224	220K 1/6W CARBON	
	R349	QRD167J-223	22K 1/6W CARBON	
	R351	QRD167J-102	1K 1/6W CARBON	
	R352	QRD167J-102	1K 1/6W CARBON	
	R353	QRD167J-153	15K 1/6W CARBON	
	R354	QRD167J-153	15K 1/6W CARBON	
	R355	QRD167J-243	24K 1/6W CARBON	
	R356	QRD167J-243	24K 1/6W CARBON	
	R357	QRD167J-332	3.3K 1/6W CARBON	
	R358	QRD167J-332	3.3K 1/6W CARBON	
	R359	QRD167J-223	22K 1/6W CARBON	
	R360	QRD167J-223	22K 1/6W CARBON	
	R361	QRD167J-561	560 1/6W CARBON	
	R362	QRD167J-561	560 1/6W CARBON	
	R363	QRD167J-202	2K 1/6W CARBON	
	R364	QRD167J-202	2K 1/6W CARBON	
	R365	QRD167J-103	10K 1/6W CARBON	
	R366	QRD167J-105	1M 1/6W CARBON	
	R368	QRD167J-271	270 1/6W CARBON	
	R369	QRD167J-102	1K 1/6W CARBON	
	R370	QRD167J-102	1K 1/6W CARBON	
	R371	QRD167J-562	5.6K 1/6W CARBON	
	R372	QRD167J-562	5.6K 1/6W CARBON	
	R373	QRD167J-103	10K 1/6W CARBON	
	R374	QRD167J-103	10K 1/6W CARBON	
	R375	QRD167J-473	47K 1/6W CARBON	
	R376	QRD167J-473	47K 1/6W CARBON	
	R377	QRD167J-103	10K 1/6W CARBON	
	R378	QRD167J-103	10K 1/6W CARBON	
	R379	QRD167J-103	10K 1/6W CARBON	
	R380	QRD167J-103	10K 1/6W CARBON	
	R387	QRD167J-103	10K 1/6W CARBON	
	R388	QRD167J-102	1K 1/6W CARBON	
	R389	QRD167J-221	220 1/6W CARBON	
	R390	QRD167J-221	220 1/6W CARBON	
	R391	QRD167J-822	8.2K 1/6W CARBON	
	R392	QRD167J-822	8.2K 1/6W CARBON	
	R393	QRD167J-562	5.6K 1/6W CARBON	
	R394	QRD167J-562	5.6K 1/6W CARBON	
	R395	QRD167J-103	10K 1/6W CARBON	
	R396	QRD167J-103	10K 1/6W CARBON	
	R401	QRD167J-223	22K 1/6W CARBON	
	R402	QRD167J-223	22K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R403	QRD167J-362	3.6K	1/6W	CARBON	
	R404	QRD167J-362	3.6K	1/6W	CARBON	
	R405	QRD167J-683	68K	1/6W	CARBON	
	R406	QRD167J-683	68K	1/6W	CARBON	
	R407	QRD167J-153	15K	1/6W	CARBON	
	R408	QRD167J-153	15K	1/6W	CARBON	
	R409	QRD167J-153	15K	1/6W	CARBON	
	R410	QRD167J-153	15K	1/6W	CARBON	
	R411	QRD167J-202	2K	1/6W	CARBON	
	R412	QRD167J-202	2K	1/6W	CARBON	
	R413	QRD167J-182	1.8K	1/6W	CARBON	
	R414	QRD167J-182	1.8K	1/6W	CARBON	
	R415	QRD167J-301	300	1/6W	CARBON	
	R416	QRD167J-301	300	1/6W	CARBON	
	R417	QRD167J-241	240	1/6W	CARBON	
	R418	QRD167J-241	240	1/6W	CARBON	
	R423	QRD167J-122	1.2K	1/6W	CARBON	
	R424	QRD167J-122	1.2K	1/6W	CARBON	
	R425	QRD167J-682	6.8K	1/6W	CARBON	
	R426	QRD167J-682	6.8K	1/6W	CARBON	
	R431	QRD167J-394	390K	1/6W	CARBON	
	R432	QRD167J-394	390K	1/6W	CARBON	
	R433	QRD167J-221	220	1/6W	CARBON	
	R434	QRD167J-221	220	1/6W	CARBON	
	R438	QRD167J-183	18K	1/6W	CARBON	
	R439	QRD167J-103	10K	1/6W	CARBON	
	R440	QRD167J-223	22K	1/6W	CARBON	
	R441	QRD167J-122	1.2K	1/6W	CARBON	
	R442	QRD167J-122	1.2K	1/6W	CARBON	
	R443	QRD167J-242	2.4K	1/6W	CARBON	
	R444	QRD167J-242	2.4K	1/6W	CARBON	
	R445	QRD167J-224	220K	1/6W	CARBON	
	R446	QRD167J-103	10K	1/6W	CARBON	
	R447	QRD167J-103	10K	1/6W	CARBON	
	R448	QRD167J-223	22K	1/6W	CARBON	
	R450	QRD167J-102	1K	1/6W	CARBON	
	R451	QRD167J-102	1K	1/6W	CARBON	
	R453	QRD167J-470	47	1/6W	CARBON	
	R454	QRD167J-470	47	1/6W	CARBON	
	R455	QRD167J-334	330K	1/6W	CARBON	
	R456	QRD167J-334	330K	1/6W	CARBON	
	R457	QRD167J-432	4.3K	1/6W	CARBON	
	R458	QRD167J-432	4.3K	1/6W	CARBON	
	R459	QRD167J-302	3K	1/6W	CARBON	
	R460	QRD167J-302	3K	1/6W	CARBON	
	R461	QRD167J-562	5.6K	1/6W	CARBON	
	R462	QRD167J-562	5.6K	1/6W	CARBON	
	R463	QRD167J-752	7.5K	1/6W	CARBON	
	R464	QRD167J-752	7.5K	1/6W	CARBON	
	R465	QRD167J-223	22K	1/6W	CARBON	
	R466	QRD167J-223	22K	1/6W	CARBON	
	R467	QRD167J-105	1M	1/6W	CARBON	
	R468	QRD167J-105	1M	1/6W	CARBON	
	R469	QRD167J-105	1M	1/6W	CARBON	
	R470	QRD167J-105	1M	1/6W	CARBON	
	R471	QRD167J-471	470	1/6W	CARBON	
	R472	QRD167J-472	4.7K	1/6W	CARBON	
	R473	QRD167J-472	4.7K	1/6W	CARBON	
	R477	QRD167J-223	22K	1/6W	CARBON	
	R478	QRD167J-223	22K	1/6W	CARBON	
	R501	QRD167J-104	100K	1/6W	CARBON	
	R502	QRD167J-104	100K	1/6W	CARBON	
⚠	R503	QRD14CJ-821S	820	1/4W	UNF.CARBON	
⚠	R504	QRD14CJ-821S	820	1/4W	UNF.CARBON	
	R505	QRD167J-471	470	1/6W	CARBON	
	R506	QRD167J-471	470	1/6W	CARBON	
	R507	QRD167J-104	100K	1/6W	CARBON	
	R508	QRD167J-104	100K	1/6W	CARBON	
⚠	R509	QRD14CJ-272S	2.7K	1/4W	UNF.CARBON	
⚠	R510	QRD14CJ-272S	2.7K	1/4W	UNF.CARBON	
	R511	QRD167J-102	1K	1/6W	CARBON	
	R512	QRD167J-102	1K	1/6W	CARBON	
⚠	R513	QRD14CJ-272S	2.7K	1/4W	UNF.CARBON	
⚠	R514	QRD14CJ-272S	2.7K	1/4W	UNF.CARBON	
⚠	R517	QRX012J-R22AM	0.22	1W	M.FILM	
⚠	R518	QRX012J-R22AM	0.22	1W	M.FILM	
⚠	R519	QRD14CJ-101S	100	1/4W	UNF.CARBON	B
⚠	R519	QRZ0077-101	100	1/4W	FUSIBLE	C
⚠	R519	QRZ0077-101	100	1/4W	FUSIBLE	D
⚠	R520	QRZ0077-100	10	1/4W	FUSIBLE	
⚠	R521	QRD14CJ-100S	10	1/4W	UNF.CARBON	
⚠	R522	QRD14CJ-100S	10	1/4W	UNF.CARBON	
⚠	R523	QRD14CJ-100S	10	1/4W	UNF.CARBON	
⚠	R524	QRD14CJ-100S	10	1/4W	UNF.CARBON	
	R525	QRD167J-153	15K	1/6W	CARBON	
⚠	R526	QRD14CJ-100S	10	1/4W	UNF.CARBON	
⚠	R527	QRG022J-122AM	1.2K	2W	O.M.FILM	
⚠	R528	QRZ0077-100	10	1/4W	FUSIBLE	
⚠	R580	QRG022J-122AM	1.2K	2W	O.M.FILM	
	VR311	QVPA601-503A	50K		VARIABLE	
	VR312	QVPA601-503A	50K		VARIABLE	
	VR331	QVPA601-204A	200K		VARIABLE	
	VR332	QVPA601-204A	200K		VARIABLE	
	VR451	QVPA601-201A	200		VARIABLE	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	VR452	QVPA601-201A	200	VARIABLE	
	VR453	QVPA601-201A	200	VARIABLE	
	VR454	QVPA601-201A	200	VARIABLE	
	VR455	QVPA601-203A	20K	VARIABLE	
	VR456	QVPA601-203A	20K	VARIABLE	
	VR457	QVPA601-203A	20K	VARIABLE	
	VR458	QVPA601-203A	20K	VARIABLE	

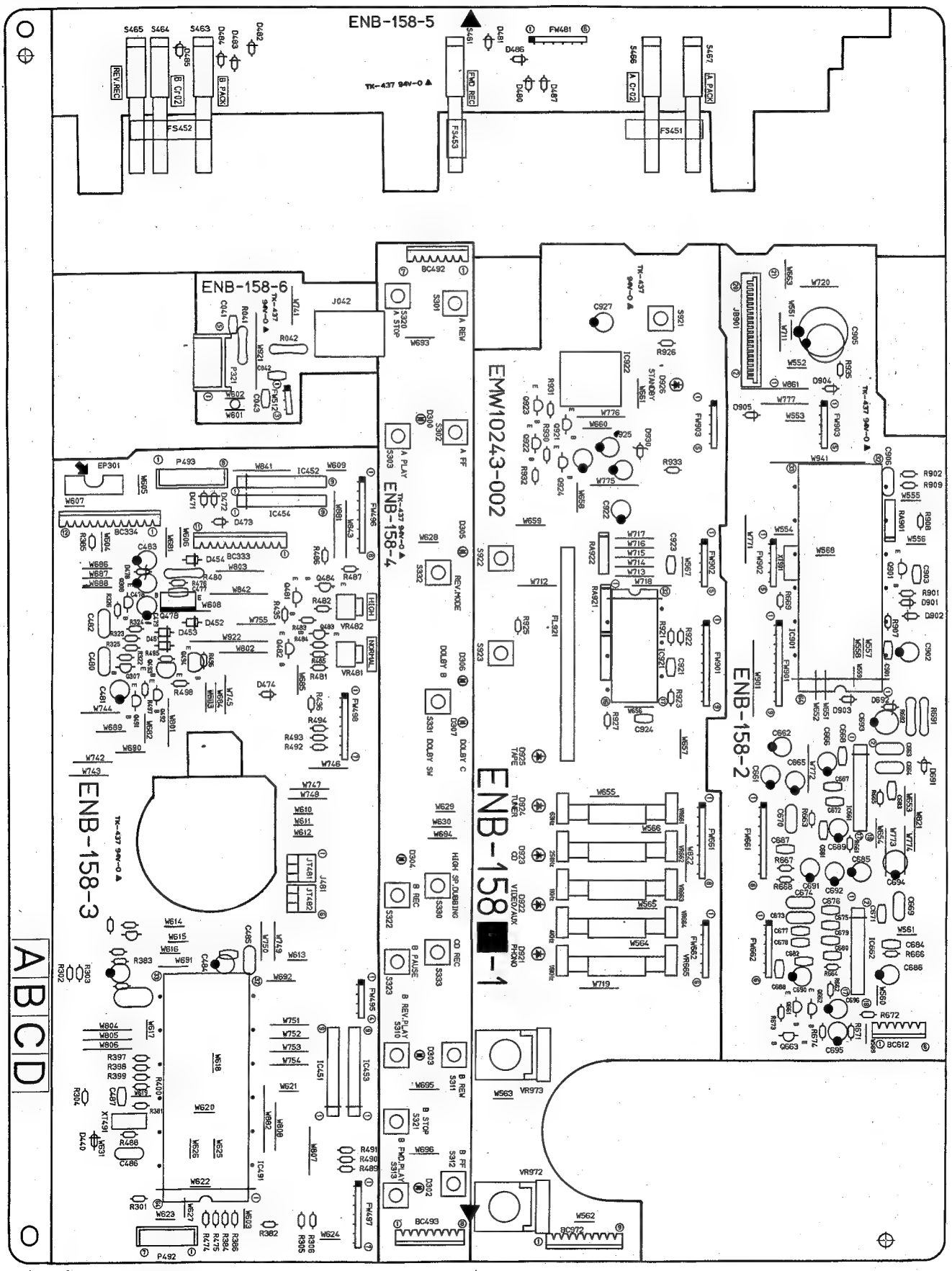
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10238-003	PRINTED BOARD	
	J041	EMB90TV-402A	SPEAKER TERMINAL	
	L321	EQL2106-223	INDUCTOR	
	L322	EQL2106-223	INDUCTOR	
	L331	ENZ6002-010	OSCILLATOR COIL	
	L333	EQL2106-223	INDUCTOR	
	L334	EQL2106-223	INDUCTOR	
	L401	EQL2106-562	INDUCTOR	
	L402	EQL2106-562	INDUCTOR	
	L501	EQL0001-R45	INDUCTOR	
	L502	EQL0001-R45	INDUCTOR	
	P331	QMV5011-007K	PLUG ASSY(7PIN)	
	P332	QMV5011-003K	PLUG ASSY(3PIN)	
	P333	EMV5142-911	PLUG ASSY(11PIN)	
	P334	EMV5142-912	PLUG ASSY(12PIN)	
	S310	QSS6A12-E01	SLIDE SWITCH(BBAT CUT)	
	BC321	EWS245-009	SOCKET WIRE(5PIN)	
	EP401	E70225-002	EARTH PLATE	
	JB001	EMV7125-004R	CONNECTOR(4PIN)	
	JB401	EMV7140-L11R	CONNECTOR(11PIN)	
	JB402	EMV7125-004R	CONNECTOR(4PIN)	
	JB501	EMV7125-013R	CONNECTOR(13PIN)	
	JB561	EMV7125-010R	CONNECTOR(10PIN)	

⚠ : SAFETY PARTS

■ENB-158 ☐ Front & Deck Controller PC Board Ass'y

Note : ENB-158 ☐ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENB-158 [A]	the U.S.A., Canada
ENB-158 [B]	Australia, Universal Type, Continental Europe, Scandinavia, Eastern Europe
ENB-158 [C]	the U.K.
ENB-158 [D]	Germany, Italy

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q307	2SC1740S(R,S)	SILICON	ROHM	
	Q308	2SC1740S(R,S)	SILICON	ROHM	
	Q478	2SD2037(E,F)	SILICON	ROHM	
	Q481	2SC1740S(R,S)	SILICON	ROHM	
	Q482	2SC1740S(R,S)	SILICON	ROHM	
	Q483	2SA933S(R,S)	SILICON	ROHM	
	Q484	2SA933S(R,S)	SILICON	ROHM	
	Q491	DTC144ES	SILICON	ROHM	
	Q492	DTC144ES	SILICON	ROHM	
	Q493	2SA934(Q,R)	SILICON	ROHM	
	Q494	2SA934(Q,R)	SILICON	ROHM	
	Q661	2SD2144S(VW)	SILICON	ROHM	
	Q662	2SD2144S(VW)	SILICON	ROHM	
	Q663	DTA144ES	SILICON	ROHM	
	Q901	DTC114WS	SILICON	SOO1	
	Q921	DTC144ES	SILICON	ROHM	
	Q922	2SA933S(R,S)	SILICON	ROHM	
	Q923	DTA114YS	SILICON	ROHM	
	Q924	2SC1740S(R,S)	SILICON	ROHM	

I. C. s

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	IC451	BA6218	I.C.	ROHM	
	IC452	BA6218	I.C.	ROHM	
	IC453	BA6218	I.C.	ROHM	
	IC454	BA6218	I.C.	ROHM	
	IC491	HD614081SC34	I.C.	HITACHI	
	IC661	BA3812L	I.C.	ROHM	
	IC662	BA3812L	I.C.	ROHM	
	IC901	UPD75104CW-269	I.C.	NEC	
	IC921	XR1094CP	I.C.	EXAR JAPAN	
	IC922	SPS-420-1	I.C.	SANYO	

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D300	SLR-34MC3F	L.E.D.	ROHM	
	D302	SLR-34MC3F	L.E.D.	ROHM	
	D303	SLR-34MC3F	L.E.D.	ROHM	
	D304	SLR-34VC3F	L.E.D.	ROHM	
	D305	SLR-34VC3F	L.E.D.	ROHM	
	D306	SLR-34VC3F	L.E.D.	ROHM	
	D451	1SR139-200	SILICON	ROHM	
	D452	1SR139-200	SILICON	ROHM	
	D453	1SR139-200	SILICON	ROHM	
	D454	1SR139-200	SILICON	ROHM	
	D471	1SS133	SILICON	ROHM	
	D472	1SS133	SILICON	ROHM	
	D473	1SS133	SILICON	ROHM	
	D474	1SS133	SILICON	ROHM	
	D478	MTZ6.2JC	ZENER	ROHM	
	D480	1SS133	SILICON	ROHM	
	D481	1SS133	SILICON	ROHM	
	D483	1SS133	SILICON	ROHM	
	D484	1SS133	SILICON	ROHM	
	D485	1SS133	SILICON	ROHM	
	D486	1SS133	SILICON	ROHM	
	D487	1SS133	SILICON	ROHM	
	D691	RD6.8JSB3	ZENER	NEC	
	D692	RD6.8JSB3	ZENER	NEC	
	D901	1SS133	SILICON	ROHM	
	D902	1SS133	SILICON	ROHM	
	D903	1SS133	SILICON	ROHM	
	D904	1SS133	SILICON	ROHM	
	D905	1SS133	SILICON	ROHM	
	D921	SLR-34VC3F	L.E.D.	ROHM	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D922	SLR-34VC3F	L.E.D.	ROHM	
	D923	SLR-34VC3F	L.E.D.	ROHM	
	D924	SLR-34VC3F	L.E.D.	ROHM	
	D925	SLR-34VC3F	L.E.D.	ROHM	
	D926	SLR-34VC3F	L.E.D.	ROHM	A
	D926	SLR-34VC3F	L.E.D.	ROHM	B
	D926	SLA-580LT3F	L.E.D.	ROHM	C
	D926	SLR-34VC3F	L.E.D.	ROHM	D
	D930	MTZ5.1JB	ZENER	ROHM	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C041	QCBB1HK-221	220PF	50V	CERAMIC	B
	C041	QCBB1HK-221	220PF	50V	CERAMIC	C
	C041	QCBB1HK-221	220PF	50V	CERAMIC	D
	C042	QCBB1HK-221	220PF	50V	CERAMIC	B
	C042	QCBB1HK-221	220PF	50V	CERAMIC	C
	C042	QCBB1HK-221	220PF	50V	CERAMIC	D
	C477	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C478	QETB1AM-476	47MF	10V	ELECTRO	
	C479	QETB1AM-476	47MF	10V	ELECTRO	
	C480	QCF21HP-223	0.022MF	50V	CERAMIC	
	C481	QETB1HM-105	1MF	50V	ELECTRO	
	C482	QCF21HP-223	0.022MF	50V	CERAMIC	
	C483	QETB1CM-476	47MF	16V	ELECTRO	
	C484	QETB1CM-476	47MF	16V	ELECTRO	
	C485	QCZ020S-155	1.5MF	25V	CERAMIC	
	C486	QFLB1HJ-473	0.047MF	50V	MYLAR	
	C487	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C661	QETB1HM-225	2.2MF	50V	ELECTRO	
	C662	QETB1HM-225	2.2MF	50V	ELECTRO	
	C663	QFLB1HJ-273	0.027MF	50V	MYLAR	
	C664	QFLB1HJ-273	0.027MF	50V	MYLAR	
	C665	QETB1HM-474	0.47MF	50V	ELECTRO	
	C666	QETB1HM-474	0.47MF	50V	ELECTRO	
	C667	QCXB1CM-682	6800PF	16V	CERAMIC	
	C668	QCXB1CM-682	6800PF	16V	CERAMIC	
	C669	QFLB1HJ-124	0.12MF	50V	MYLAR	
	C670	QFLB1HJ-124	0.12MF	50V	MYLAR	
	C671	QCXB1CM-182	1800PF	16V	CERAMIC	
	C672	QCXB1CM-182	1800PF	16V	CERAMIC	
	C673	QFLB1HJ-333	0.033MF	50V	MYLAR	
	C674	QFLB1HJ-333	0.033MF	50V	MYLAR	
	C675	QCBB1HK-471	470PF	50V	CERAMIC	
	C676	QCBB1HK-471	470PF	50V	CERAMIC	
	C677	QCVB1CM-822	8200PF	16V	CERAMIC	
	C678	QCVB1CM-822	8200PF	16V	CERAMIC	
	C679	QCBB1HK-101	100PF	50V	CERAMIC	
	C680	QCBB1HK-101	100PF	50V	CERAMIC	
	C681	QCBB1HK-471	470PF	50V	CERAMIC	
	C682	QCBB1HK-471	470PF	50V	CERAMIC	
	C683	QCBB1HK-101	100PF	50V	CERAMIC	
	C684	QCBB1HK-101	100PF	50V	CERAMIC	
	C685	EEZ5009-106	10MF		ELECTRO	
	C686	EEZ5009-106	10MF		ELECTRO	
	C687	QCGB1HK-102	1000PF	50V	CERAMIC	
	C688	QCGB1HK-102	1000PF	50V	CERAMIC	
	C689	QETB1EM-106	10MF	25V	ELECTRO	
	C690	QETB1EM-106	10MF	25V	ELECTRO	
	C691	QETB1HM-225	2.2MF	50V	ELECTRO	
	C692	QETB1HM-225	2.2MF	50V	ELECTRO	
	C693	QETB1CM-107	100MF	16V	ELECTRO	
	C694	QETB1CM-107	100MF	16V	ELECTRO	
	C695	EEZ5009-106	10MF		ELECTRO	
	C696	EEZ5009-106	10MF		ELECTRO	
	C901	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C902	QETB1EM-106	10MF	25V	ELECTRO	
	C903	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C905	QETBOJM-108	1000MF	6.3V	ELECTRO	
	C906	QCZ0205-155	1.5MF	25V	CERAMIC	
	C921	QFLB1HJ-152	1500PF	50V	MYLAR	
	C922	QER51HM-225G	2.2MF	50V	ELECTRO	
	C923	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C924	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C925	QETB1AM-476	47MF	10V	ELECTRO	
	C927	QETB1HM-225	2.2MF	50V	ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R041	QRD12CJ-331S	330	1/2W	R.NETWORK	
	R042	QRD12CJ-331S	330	1/2W	R.NETWORK	
	R301	QRD167J-271	270	1/6W	CARBON	
	R302	QRD167J-271	270	1/6W	CARBON	
	R303	QRD167J-271	270	1/6W	CARBON	
	R304	QRD167J-561	560	1/6W	CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R305	QRD167J-471	470 1/6W CARBON	
	R306	QRD167J-471	470 1/6W CARBON	
	R322	QRD167J-753	75K 1/6W CARBON	
	R323	QRD167J-105	1M 1/6W CARBON	
	R324	QRD167J-103	10K 1/6W CARBON	
	R325	QRD167J-753	75K 1/6W CARBON	
	R326	QRD167J-105	1M 1/6W CARBON	
	R381	QRD167J-472	4.7K 1/6W CARBON	
	R382	QRD167J-103	10K 1/6W CARBON	
	R383	QRD167J-271	270 1/6W CARBON	
	R384	QRD167J-103	10K 1/6W CARBON	
	R385	QRD167J-151	150 1/6W CARBON	
	R397	QRD167J-103	10K 1/6W CARBON	
	R398	QRD167J-103	10K 1/6W CARBON	
	R399	QRD167J-103	10K 1/6W CARBON	
	R400	QRD167J-103	10K 1/6W CARBON	
	R435	QRD167J-103	10K 1/6W CARBON	
	R436	QRD167J-103	10K 1/6W CARBON	
	R474	QRD167J-222	2.2K 1/6W CARBON	
	R475	QRD167J-103	10K 1/6W CARBON	
	R476	QRD167J-102	1K 1/6W CARBON	
⚠	R480	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
	R481	QRD167J-153	15K 1/6W CARBON	
	R482	QRD167J-183	18K 1/6W CARBON	
	R483	QRD167J-184	180K 1/6W CARBON	
	R484	QRD167J-224	220K 1/6W CARBON	
	R485	QRD167J-683	68K 1/6W CARBON	
	R486	QRD167J-224	220K 1/6W CARBON	
	R487	QRD167J-224	220K 1/6W CARBON	
	R488	QRD167J-105	1M 1/6W CARBON	
	R489	QRD167J-103	10K 1/6W CARBON	
	R490	QRD167J-103	10K 1/6W CARBON	
	R491	QRD167J-103	10K 1/6W CARBON	
	R492	QRD167J-103	10K 1/6W CARBON	
	R493	QRD167J-103	10K 1/6W CARBON	
	R494	QRD167J-103	10K 1/6W CARBON	
	R495	QRD167J-103	10K 1/6W CARBON	
	R496	QRD167J-103	10K 1/6W CARBON	
	R497	QRD167J-102	1K 1/6W CARBON	
	R498	QRD167J-102	1K 1/6W CARBON	
	R661	QRD167J-102	1K 1/6W CARBON	
	R662	QRD167J-102	1K 1/6W CARBON	
	R663	QRD167J-392	3.9K 1/6W CARBON	
	R664	QRD167J-392	3.9K 1/6W CARBON	
	R665	QRD167J-392	3.9K 1/6W CARBON	
	R666	QRD167J-392	3.9K 1/6W CARBON	
	R667	QRD167J-104	100K 1/6W CARBON	
	R668	QRD167J-104	100K 1/6W CARBON	
	R669	QRD167J-104	100K 1/6W CARBON	
	R671	QRD167J-472	4.7K 1/6W CARBON	
	R672	QRD167J-472	4.7K 1/6W CARBON	
	R673	QRD167J-103	10K 1/6W CARBON	
	R674	QRD167J-103	10K 1/6W CARBON	
⚠	R691	QRD14CJ-221S	220 1/4W UNF.CARBON	
⚠	R692	QRD14CJ-221S	220 1/4W UNF.CARBON	
	R901	QRD167J-473	47K 1/6W CARBON	
	R902	QRD167J-223	22K 1/6W CARBON	
	R907	QRD167J-104	100K 1/6W CARBON	
	R908	QRD167J-473	47K 1/6W CARBON	
	R909	QRD167J-473	47K 1/6W CARBON	
	R921	QRD167J-102	1K 1/6W CARBON	
	R923	QRD167J-105	1M 1/6W CARBON	
	R925	QRD167J-221	220 1/6W CARBON	
	R926	QRD167J-241	240 1/6W CARBON	
	R927	QRD167J-473	47K 1/6W CARBON	
	R930	QRD167J-103	10K 1/6W CARBON	
	R931	QRD167J-103	10K 1/6W CARBON	
	R932	QRD167J-104	100K 1/6W CARBON	
	R933	QRD167J-331	330 1/6W CARBON	
	R935	QRD167J-221	220 1/6W CARBON	
	RA901	QRB059J-473	47K 1/10W R.NETWORK	
	RA921	QRB139J-104	100K 1/10W R.NETWORK	
	RA922	QRB059J-104	100K 1/10W R.NETWORK	
	VR481	QVPA603-103A	10K VARIABLE	
	VR482	QVPA603-203A	20K VARIABLE	
	VR661	QVXB06W-E15C	100K VARIABLE	
	VR662	QVXB06W-E15C	100K VARIABLE	
	VR663	QVXB06W-E15C	100K VARIABLE	
	VR664	QVXB06W-E15C	100K VARIABLE	
	VR665	QVXB06W-E15C	100K VARIABLE	
	VR972	QVJB84M-E54B	50K VARIABLE	
	VR973	QVJB84A-EF5C	250K VARIABLE	

⚠ : SAFETY PARTS

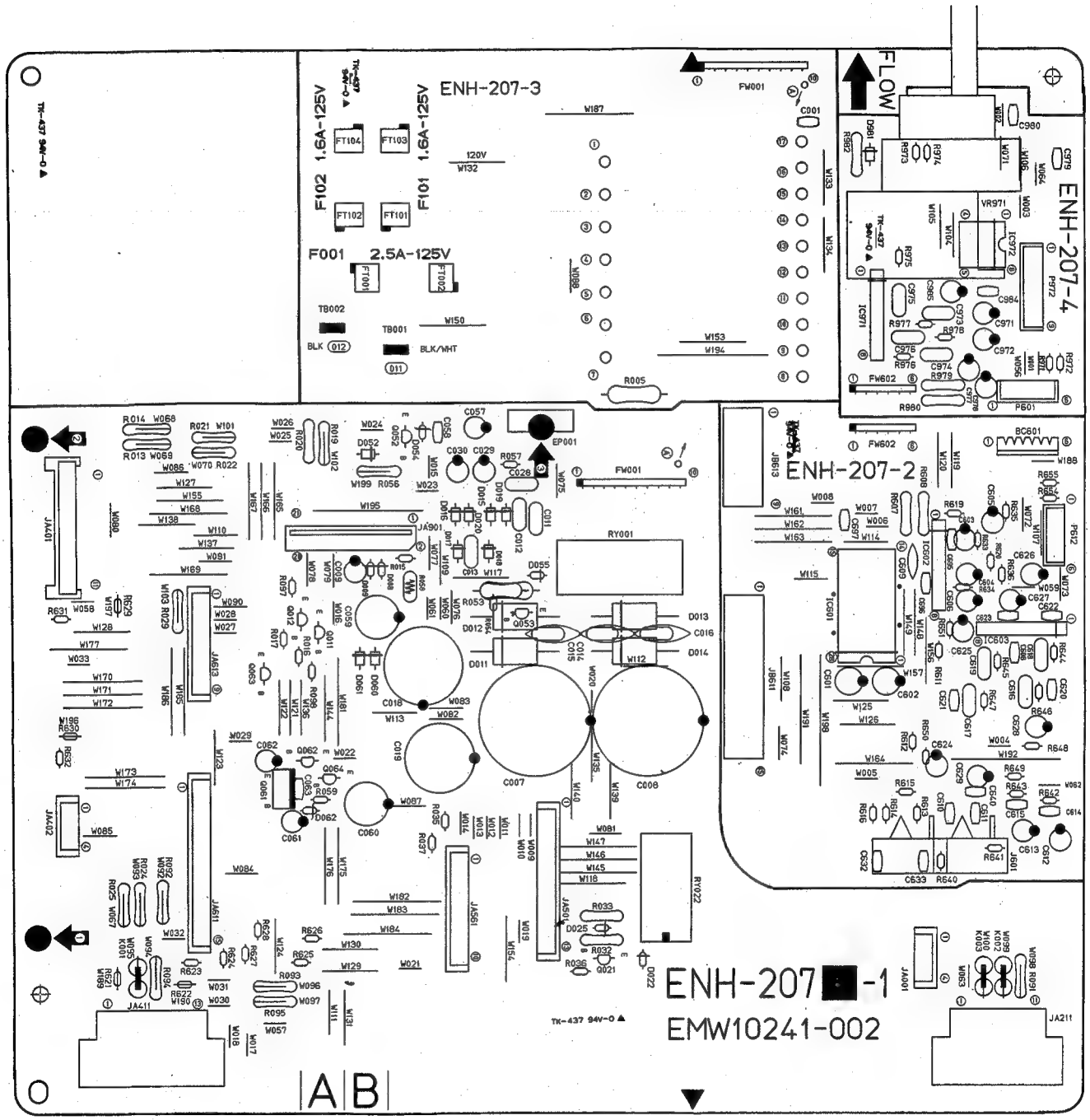
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10243-003	CIRCUIT BOARD	
	J042	QMS3L40-EDOH	MINI JACK(HEAD PHONE)	
	P321	EMV5133-005KR	PLUG ASSY(5PIN)	
	P492	EMV5142-907	PLUG ASSY(7PIN)	
	P493	EMV5142-908	PLUG ASSY(8PIN)	
	S301	ESP0001-023M	TACT SWITCH(A REWIND)	
	S302	ESP0001-023M	TACT SWITCH(A FF)	
	S303	ESP0001-023M	TACT SWITCH(A PLAY)	
	S310	ESP0001-023M	TACT SWITCH(B REVERSE)	
	S311	ESP0001-023M	TACT SWITCH(B REWIND)	
	S312	ESP0001-023M	TACT SWITCH(B FF)	
	S313	ESP0001-023M	TACT SWITCH(B PLAY)	
	S320	ESP0001-023M	TACT SWITCH(A STOP)	
	S321	ESP0001-023M	TACT SWITCH(B STOP)	
	S322	ESP0001-023M	TACT SWITCH(B REC)	
	S323	ESP0001-023M	TACT SWITCH(B PAUSE)	
	S330	ESP0001-023M	TACT SWITCH(DUBBING)	
	S331	ESP0001-023M	TACT SWITCH(DOLBY)	
	S332	ESP0001-023M	TACT SWITCH(REV.MODE)	
	S333	ESP0001-023M	TACT SWITCH(CD REC)	
	S461	ESB1100-007	LEAF SWITCH(LEAF SW:FWD REC)	
	S463	ESB1100-007	LEAF SWITCH(LEAF SW:B PACK)	
	S464	ESB1100-007	LEAF SWITCH(LEAF SW:B CrO_2)	
	S465	ESB1100-007	LEAF SWITCH(LEAF SW:REV REC)	
	S466	ESB1100-007	LEAF SWITCH(LEAF SW:A CrO_2)	
	S467	ESB1100-007	LEAF SWITCH(LEAF SW:A PACK)	
	S921	ESP0001-023M	TACT SWITCH(POWER)	
	S922	ESP0001-023M	TACT SWITCH(SOURCE SEL.LEFT)	
	S923	ESP0001-023M	TACT SWITCH(SOURCE SEL.RIGHT)	
	BC333	EWS32B-A912	SOCKET WIRE(11PIN)	
	BC334	EWS32C-A912	SOCKET WIRE(12PIN)	
	BC492	EWS327-A916	SOCKET WIRE(7PIN)	
	BC493	EWS328-A916	SOCKET WIRE(8PIN)	
	BC612	EWS296-0120	SOCKET WIRE(6PIN)	
	BC972	EWS299-0113	SOCKET WIRE(6PIN)	
	BK921	E307397-002	FLOURESCENT DISPL.HOLDER	
	FL921	ELU0001-117	FL TUBE	
	FS921	E3400-449	FELT SPACER	
	FW481	EWR36B-13LST	FLAT WIRE(6PIN)	
	FW495	EWR34B-08LST	FLAT WIRE(4PIN)	
	FW496	EWR38B-08LST	FLAT WIRE(8PIN)	
	FW497	EWR37B-10LST	FLAT WIRE(7PIN)	
	FW498	EWR37B-10LST	FLAT WIRE(7PIN)	
	FW661	EWR38B-08SST	FLAT WIRE(8PIN)	
	FW662	EWR36B-08SST	FLAT WIRE(6PIN)	
	FW901	EWR39B-13SST	FLAT WIRE(9PIN)	
	FW902	EWR35B-08SST	FLAT WIRE(5PIN)	
	FW903	EWR35B-10SST	FLAT WIRE(5PIN)	
	JB901	EMV7123-021	CONNECTOR(21PIN)	
	JT481	EMV7122-103	CONNECTOR(3PIN)	
	JT482	EMV7122-103	CONNECTOR(3PIN)	
	XT491	ECX0004-194KM	RESONATOR	
	XT901	ECX0004-194KM	RESONATOR	

⚠ : SAFETY PARTS

■ ENH-207 ☐ Input Selector & Power Supply PC Board Ass'y

Note : ENH-207 ☐ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENH-207 [A]	the U.S.A.
ENH-207 [B]	Canada
ENH-207 [C]	Universal Type
ENH-207 [D]	Continental Europe, Scandinavia, Eastern Europe
ENH-207 [E]	Australia
ENH-207 [F] BS	the U.K.
ENH-207 [G]	Germany, Italy

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q011	DTC114YS	SILICON	ROHM	
	Q012	DTC114YS	SILICON	ROHM	
	Q021	2SC1740S(R,S)	SILICON	ROHM	
	Q052	2SC1741A(Q,R)	SILICON	ROHM	
	Q053	2SC1740S(R,S)	SILICON	ROHM	
	Q061	2SB1357(E,F)	SILICON	ROHM	
	Q062	DTA144ES	SILICON	ROHM	
	Q063	DTC143TS	SILICON	ROHM	
	Q064	DTC114YS	SILICON	ROHM	

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⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	IC601	TC9163N	I.C.	TOSHIBA	
	IC602	BA15218N	I.C.	ROHM	
	IC603	VC4580LD	I.C.	DAINICHI	
	IC971	BA15218N	I.C.	ROHM	
	IC972	LB1639-CV	I.C.	SANYO	

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D008	1SS133	SILICON	ROHM	
	D009	MTZ5.1JC	ZENER	ROHM	
	D011	S3V20F	SILICON	SINDENGEN	A
	D011	S3V20F	SILICON	SINDENGEN	B
⚠	D011	30DL2FC	SILICON	NIHONINTER	C
⚠	D011	30DL2FC	SILICON	NIHONINTER	D
⚠	D011	30DL2FC	SILICON	NIHONINTER	E
⚠	D011	30DL2FC	SILICON	NIHONINTER	FBS
⚠	D011	30DL2FC	SILICON	NIHONINTER	G
	D012	S3V20F	SILICON	SINDENGEN	A
	D012	S3V20F	SILICON	SINDENGEN	B
⚠	D012	30DL2FC	SILICON	NIHONINTER	C
⚠	D012	30DL2FC	SILICON	NIHONINTER	D
⚠	D012	30DL2FC	SILICON	NIHONINTER	E
⚠	D012	30DL2FC	SILICON	NIHONINTER	FBS
⚠	D012	30DL2FC	SILICON	NIHONINTER	G
	D013	S3V20F	SILICON	SINDENGEN	A
	D013	S3V20F	SILICON	SINDENGEN	B
⚠	D013	30DL2FC	SILICON	NIHONINTER	C
⚠	D013	30DL2FC	SILICON	NIHONINTER	D
⚠	D013	30DL2FC	SILICON	NIHONINTER	E
⚠	D013	30DL2FC	SILICON	NIHONINTER	FBS
⚠	D013	30DL2FC	SILICON	NIHONINTER	G
	D014	S3V20F	SILICON	SINDENGEN	A
	D014	S3V20F	SILICON	SINDENGEN	B
⚠	D014	30DL2FC	SILICON	NIHONINTER	C
⚠	D014	30DL2FC	SILICON	NIHONINTER	D
⚠	D014	30DL2FC	SILICON	NIHONINTER	E
⚠	D014	30DL2FC	SILICON	NIHONINTER	FBS
⚠	D014	30DL2FC	SILICON	NIHONINTER	G
	D015	1SR139-200	SILICON	ROHM	
	D016	1SR139-200	SILICON	ROHM	
	D017	1SR139-200	SILICON	ROHM	
	D018	1SR139-200	SILICON	ROHM	
	D019	1SR139-200	SILICON	ROHM	
	D020	1SR139-200	SILICON	ROHM	
	D022	1SS133	SILICON	ROHM	
	D025	MTZ6.2JC	ZENER	ROHM	C
	D025	MTZ6.2JC	ZENER	ROHM	D
	D025	MTZ6.2JC	ZENER	ROHM	E

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D025	MTZ6.2JC	ZENER	ROHM	FBS
	D025	MTZ6.2JC	ZENER	ROHM	G
	D052	1SR139-200	SILICON	ROHM	
	D054	MTZ5.1JC	ZENER	ROHM	
	D055	1SS133	SILICON	ROHM	
	D060	1SR139-200	SILICON	ROHM	
	D061	1SR139-200	SILICON	ROHM	
	D062	MTZ30JC	ZENER	ROHM	
	D981	1SR139-200	SILICON	ROHM	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C001	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C007	EEW4205-688T	6800MF		ELECTRO	
	C008	EEW4205-688T	6800MF		ELECTRO	
	C009	QETB1HM-225	2.2MF	50V	ELECTRO	
	C011	QFV81HJ-104	0.1MF	50V	T.FILM	
	C012	QFV81HJ-104	0.1MF	50V	T.FILM	
	C013	QFV81HJ-104	0.1MF	50V	T.FILM	
	C014	QFN82AK-103	0.01MF	100V	MYLAR	A
	C014	QFN82AK-103	0.01MF	100V	MYLAR	B
	C014	QFV82AJ-104	0.1MF	100V	T.FILM	C
	C014	QFV82AJ-104	0.1MF	100V	T.FILM	D
	C014	QFV82AJ-104	0.1MF	100V	T.FILM	E
	C014	QFV82AJ-104	0.1MF	100V	T.FILM	FBS
	C014	QFV82AJ-104	0.1MF	100V	T.FILM	G
	C015	QFN81HJ-103	0.01MF	50V	MYLAR	A
	C015	QFN81HJ-103	0.01MF	50V	MYLAR	B
	C015	QFN81HJ-104	0.1MF	50V	MYLAR	C
	C015	QFN81HJ-104	0.1MF	50V	MYLAR	D
	C015	QFN81HJ-104	0.1MF	50V	MYLAR	E
	C015	QFN81HJ-104	0.1MF	50V	MYLAR	FBS
	C015	QFN81HJ-104	0.1MF	50V	MYLAR	G
	C016	QFN81HJ-103	0.01MF	50V	MYLAR	A
	C016	QFN81HJ-103	0.01MF	50V	MYLAR	B
	C016	QFN81HJ-104	0.1MF	50V	MYLAR	C
	C016	QFN81HJ-104	0.1MF	50V	MYLAR	D
	C016	QFN81HJ-104	0.1MF	50V	MYLAR	E
	C016	QFN81HJ-104	0.1MF	50V	MYLAR	FBS
	C016	QFN81HJ-104	0.1MF	50V	MYLAR	G
	C018	QETB1VM-338	3300MF	35V	ELECTRO	
	C019	QETB1VM-228N	2200MF	35V	ELECTRO	
	C028	QFLB1HJ-104	0.1MF	50V	MYLAR	
	C029	QETB1HM-106	10MF	50V	ELECTRO	
	C030	QETB1HM-106	10MF	50V	ELECTRO	
	C057	QETB1HM-106	10MF	50V	ELECTRO	
	C058	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C059	QETB1JM-227	220MF	63V	ELECTRO	
	C060	QETB1JM-227	220MF	63V	ELECTRO	
	C061	QETB1HM-226	22MF	50V	ELECTRO	
	C062	QETB1HM-226	22MF	50V	ELECTRO	
	C063	QCGB1HK-102	1000PF	50V	CERAMIC	
	C601	QETB1EM-476	47MF	25V	ELECTRO	
	C602	QETB1EM-476	47MF	25V	ELECTRO	
	C603	EEZ5009-106	10MF		ELECTRO	
	C604	EEZ5009-106	10MF		ELECTRO	
	C605	EEZ5009-106	10MF		ELECTRO	
	C606	EEZ5009-106	10MF		ELECTRO	
	C612	QETB1HM-475	4.7MF	50V	ELECTRO	
	C613	QETB1HM-475	4.7MF	50V	ELECTRO	
	C614	QCBB1HK-101	100PF	50V	CERAMIC	
	C615	QCBB1HK-101	100PF	50V	CERAMIC	
	C616	QFLB1HJ-182	1800PF	50V	MYLAR	
	C617	QFLB1HJ-182	1800PF	50V	MYLAR	
	C618	QFLB1HJ-682	6800PF	50V	MYLAR	
	C619	QFLB1HJ-682	6800PF	50V	MYLAR	
	C620	QCBB1HK-101	100PF	50V	CERAMIC	
	C621	QCBB1HK-101	100PF	50V	CERAMIC	
	C622	QCBB1HK-101	100PF	50V	CERAMIC	
	C623	QCBB1HK-101	100PF	50V	CERAMIC	
	C624	QETB1HM-475	4.7MF	50V	ELECTRO	
	C625	QETB1HM-475	4.7MF	50V	ELECTRO	
	C626	QETB1EM-476	47MF	25V	ELECTRO	
	C627	QETB1EM-476	47MF	25V	ELECTRO	
	C628	QETB1EM-476	47MF	25V	ELECTRO	
	C629	QETB1EM-476	47MF	25V	ELECTRO	
	C632	QCBB1HK-331	330PF	50V	CERAMIC	C
	C632	QCBB1HK-331	330PF	50V	CERAMIC	D
	C632	QCBB1HK-331	330PF	50V	CERAMIC	E
	C632	QCBB1HK-331	330PF	50V	CERAMIC	FBS
	C632	QCBB1HK-331	330PF	50V	CERAMIC	G
	C633	QCBB1HK-331	330PF	50V	CERAMIC	C
	C633	QCBB1HK-331	330PF	50V	CERAMIC	D
	C633	QCBB1HK-331	330PF	50V	CERAMIC	E
	C633	QCBB1HK-331	330PF	50V	CERAMIC	FBS
	C633	QCBB1HK-331	330PF	50V	CERAMIC	G
	C697	QCBB1HK-561	560PF	50V	CERAMIC	
	C971	QETB1CM-476	47MF	16V	ELECTRO	
	C972	QETB1CM-476	47MF	16V	ELECTRO	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C973	QFLB1HJ-473	0.047MF	50V	MYLAR	
	C974	QFLB1HJ-473	0.047MF	50V	MYLAR	
	C975	QFVB1HJ-474	0.47MF	50V	T.FILM	
	C976	QFVB1HJ-474	0.47MF	50V	T.FILM	
	C977	QETB1CM-476	47MF	16V	ELECTRO	
	C978	QETB1CM-476	47MF	16V	ELECTRO	
	C984	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C985	QER50JM-476	47MF	6.3V	ELECTRO	

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
⚠	R005	QRC128K-275EM	2.7M	1/2W	COMPOSI	A
⚠	R005	QRC128K-275EM	2.7M	1/2W	COMPOSI	B
	R015	QRD167J-103	10K	1/6W	CARBON	
	R016	QRD167J-103	10K	1/6W	CARBON	
	R017	QRD167J-102	1K	1/6W	CARBON	
⚠	R019	QRD14CJ-150S	15	1/4W	UNF.CARBON	
⚠	R020	QRD14CJ-150S	15	1/4W	UNF.CARBON	
⚠	R021	QRD14CJ-680S	68	1/4W	UNF.CARBON	A
⚠	R021	QRD14CJ-680S	68	1/4W	UNF.CARBON	B
⚠	R022	QRD14CJ-680S	68	1/4W	UNF.CARBON	A
⚠	R022	QRD14CJ-680S	68	1/4W	UNF.CARBON	B
⚠	R025	QRD14CJ-3R9S	3.9	1/4W	UNF.CARBON	A
⚠	R025	QRD14CJ-3R9S	3.9	1/4W	UNF.CARBON	B
⚠	R032	QRD14CJ-1B1S	180	1/4W	UNF.CARBON	A
⚠	R032	QRD14CJ-1B1S	180	1/4W	UNF.CARBON	B
⚠	R032	QRZ0077-121	120	1/4W	FUSIBLE	C
⚠	R032	QRZ0077-121	120	1/4W	FUSIBLE	D
⚠	R032	QRZ0077-121	120	1/4W	FUSIBLE	E
⚠	R032	QRZ0077-121	120	1/4W	FUSIBLE	FBS
⚠	R032	QRZ0077-121	120	1/4W	FUSIBLE	G
⚠	R033	QRD14CJ-1B1S	180	1/4W	UNF.CARBON	
	R035	QRD167J-222	2.2K	1/6W	CARBON	
	R036	QRD167J-152	1.5K	1/6W	CARBON	
	R037	QRD167J-103	10K	1/6W	CARBON	
⚠	R053	QRG022J-221A	220	2W	O.M.FILM	
	R054	QRD167J-222	2.2K	1/6W	CARBON	
⚠	R056	QRD14CJ-220S	22	1/4W	UNF.CARBON	A
⚠	R056	QRD14CJ-220S	22	1/4W	UNF.CARBON	B
	R057	QRD161J-223Y	22K	1/6W	CARBON	
⚠	R058	PTH61G25AR47M			FUSIBLE RE SI	
	R059	QRD167J-332	3.3K	1/6W	CARBON	
⚠	R094	QRD14CJ-3R9S	3.9	1/4W	UNF.CARBON	A
⚠	R094	QRD14CJ-3R9S	3.9	1/4W	UNF.CARBON	B
	R097	QRD167J-102	1K	1/6W	CARBON	
	R098	QRD167J-121	120	1/6W	CARBON	
⚠	R607	QRD14CJ-680S	68	1/4W	UNF.CARBON	A
⚠	R607	QRD14CJ-680S	68	1/4W	UNF.CARBON	B
⚠	R607	QRZ0077-560	56	1/4W	FUSIBLE	C
⚠	R607	QRZ0077-560	56	1/4W	FUSIBLE	D
⚠	R607	QRZ0077-560	56	1/4W	FUSIBLE	E
⚠	R607	QRZ0077-560	56	1/4W	FUSIBLE	FBS
⚠	R607	QRZ0077-560	56	1/4W	FUSIBLE	G
⚠	R608	QRD14CJ-680S	68	1/4W	UNF.CARBON	A
⚠	R608	QRD14CJ-680S	68	1/4W	UNF.CARBON	B
⚠	R608	QRZ0077-560	56	1/4W	FUSIBLE	C
⚠	R608	QRZ0077-560	56	1/4W	FUSIBLE	D
⚠	R608	QRZ0077-560	56	1/4W	FUSIBLE	E
⚠	R608	QRZ0077-560	56	1/4W	FUSIBLE	FBS
⚠	R608	QRZ0077-560	56	1/4W	FUSIBLE	G
	R611	QRD167J-104	100K	1/6W	CARBON	
	R612	QRD167J-104	100K	1/6W	CARBON	
	R613	QRD167J-153	15K	1/6W	CARBON	
	R614	QRD167J-153	15K	1/6W	CARBON	
	R615	QRD167J-104	100K	1/6W	CARBON	
	R616	QRD167J-104	100K	1/6W	CARBON	
	R619	QRD167J-104	100K	1/6W	CARBON	
	R620	QRD167J-104	100K	1/6W	CARBON	
	R621	QRD167J-102	1K	1/6W	CARBON	
	R622	QRD167J-102	1K	1/6W	CARBON	
	R623	QRD167J-562	5.6K	1/6W	CARBON	
	R624	QRD167J-562	5.6K	1/6W	CARBON	
	R625	QRD167J-222	2.2K	1/6W	CARBON	
	R626	QRD167J-222	2.2K	1/6W	CARBON	
	R627	QRD167J-562	5.6K	1/6W	CARBON	
	R628	QRD167J-562	5.6K	1/6W	CARBON	
	R631	QRD167J-103	10K	1/6W	CARBON	
	R632	QRD167J-103	10K	1/6W	CARBON	
	R633	QRD167J-104	100K	1/6W	CARBON	
	R634	QRD167J-104	100K	1/6W	CARBON	
	R635	QRD167J-104	100K	1/6W	CARBON	
	R636	QRD167J-104	100K	1/6W	CARBON	
	R640	QRD167J-222	2.2K	1/6W	CARBON	
	R641	QRD167J-222	2.2K	1/6W	CARBON	
	R642	QRD167J-473	47K	1/6W	CARBON	
	R643	QRD167J-473	47K	1/6W	CARBON	
	R644	QRD167J-474	470K	1/6W	CARBON	
	R645	QRD167J-474	470K	1/6W	CARBON	
	R646	QRD167J-393	39K	1/6W	CARBON	
	R647	QRD167J-393	39K	1/6W	CARBON	
	R648	QRD167J-911	910	1/6W	CARBON	
	R649	QRD167J-911	910	1/6W	CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R650	QRD167J-561	560	1/6W	CARBON	
	R651	QRD167J-561	560	1/6W	CARBON	
	R654	QRD167J-391	390	1/6W	CARBON	
	R655	QRD167J-391	390	1/6W	CARBON	
	R971	QRD167J-222	2.2K	1/6W	CARBON	
	R972	QRD167J-222	2.2K	1/6W	CARBON	
	R973	QRD167J-153	15K	1/6W	CARBON	
	R974	QRD167J-153	15K	1/6W	CARBON	
	R975	QRD167J-331	330	1/6W	CARBON	
	R976	QRD167J-331	330	1/6W	CARBON	
	R977	QRD167J-474	470K	1/6W	CARBON	
	R978	QRD167J-474	470K	1/6W	CARBON	
⚠	R979	QRD14CJ-680S	68	1/4W	UNF.CARBON	A
⚠	R979	QRD14CJ-680S	68	1/4W	UNF.CARBON	B
⚠	R979	QRZ0077-680	68	1/4W	FUSIBLE	C
⚠	R979	QRZ0077-680	68	1/4W	FUSIBLE	D
⚠	R979	QRZ0077-680	68	1/4W	FUSIBLE	E
⚠	R979	QRZ0077-680	68	1/4W	FUSIBLE	FBS
⚠	R979	QRZ0077-680	68	1/4W	FUSIBLE	G
⚠	R980	QRD14CJ-680S	68	1/4W	UNF.CARBON	A
⚠	R980	QRD14CJ-680S	68	1/4W	UNF.CARBON	B
⚠	R980	QRZ0077-680	68	1/4W	FUSIBLE	C
⚠	R980	QRZ0077-680	68	1/4W	FUSIBLE	D
⚠	R980	QRZ0077-680	68	1/4W	FUSIBLE	E
⚠	R980	QRZ0077-680	68	1/4W	FUSIBLE	FBS
⚠	R980	QRZ0077-680	68	1/4W	FUSIBLE	G
⚠	R982	QRD14CJ-4R7S	4.7	1/4W	UNF.CARBON	
	VR971	QVD891B-E15H	100K		VARIABLE	

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10241-002	CIRCUITBOARD	A
		EMW10241-002	CIRCUITBOARD	B
		EMW10241-102	CIRCUITBOARD	C
		EMW10241-102	CIRCUITBOARD	D
		EMW10241-102	CIRCUITBOARD	E
		EMW10241-1028S	CIRCUITBOARD	FBS
		EMW10241-102	CIRCUITBOARD	G
	F001	E67132-T1R6	FUSE LABEL	C
	J601	EMN00TV-412B	4P PIN JACK	
	P601	EMV5109-006A	PLUG ASSY(6PIN)	
	P612	EMV5109-006A	PLUG ASSY(6PIN)	
	P972	EMV5109-009A	PLUG ASSY(8PIN)	
⚠	S001	QSR0085-018	VOLTAGE SELECTOR	C
	BC601	EWS296-0116	SOCKET WIRE(6PIN)	
	EP001	E70859-001	EARTH PLATE	A
	EP001	E70859-001	EARTH PLATE	B
	FT001	EMG7331-002	FUSE CLIP	
	FT002	EMG7331-002U	FUSE CLIP	
	FT003	EMG7331-002	FUSE CLIP	C
	FT004	EMG7331-002U	FUSE CLIP	C
	FT101	EMG7331-002	FUSE CLIP	
	FT102	EMG7331-002	FUSE CLIP	
	FT103	EMG7331-002U	FUSE CLIP	
	FT104	EMG7331-002U	FUSE CLIP	
	FW001	EWR3AE-25SST	FLAT WIRE(10PIN)	A
	FW001	EWR3AB-25SST	FLAT WIRE(10PIN)	B
	FW001	EWR3AE-25SST	FLAT WIRE(10PIN)	C
	FW001	EWR3AE-25SST	FLAT WIRE(10PIN)	D
	FW001	EWR3AE-25SST	FLAT WIRE(10PIN)	E
	FW001	EWR3AE-25SST	FLAT WIRE(10PIN)	FBS
	FW001	EWR3AE-25SST	FLAT WIRE(10PIN)	G
	FW602	EWR368-16SST	FLAT WIRE(6PIN)	
	JA001	EMV5125-004	PLUG ASSY(4PIN)	
	JA211	EMV7127-011	CONNECTOR(11PIN)	
	JA401	EMV5140-011	PLUG ASSY(11PIN)	
	JA402	EMV5125-004	PLUG ASSY(4PIN)	
	JA411	EMV7127-013	CONNECTOR(13PIN)	
	JA501	EMV5125-013	PLUG ASSY(13PIN)	
	JA561	EMV5125-010	PLUG ASSY(10PIN)	
	JA611	EMV5125-015	PLUG ASSY(15PIN)	
	JA613	EMV5125-009	PLUG ASSY(9PIN)	
	JA901	EMV7123-021	CONNECTOR(21PIN)	
	JB611	EMV7125-015R	CONNECTOR(15PIN)	
	JB613	EMV7125-009R	CONNECTOR(9PIN)	
	RY001	ESK1D12-211M	RELAY	
※	RY022	ESK8D24-212	RELAY	
	TB001	EMZ4001-001	TAB	
	TB002	EMZ4001-001	TAB	

⚠ : SAFETY PARTS

※ Only for the U.S.A.
R032,R033 (~#16026 : 270)
RY022 (~#16026 : ESK7D24-2120)

When using ESK8D24-212 as RY022, replace R032 and R033 according to the schematic diagram.

XXN 296

~~XX-135~~

XT-MX55MBK

1051

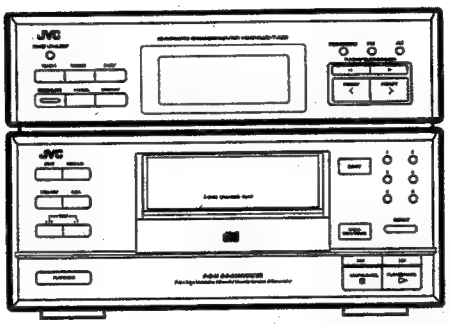
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

CA-MX55MBK

(UNIT NO. XT-MX55MBK)



* *For instruction manual, please refer to the CA-MX55MBK(S.M.NO.20342).*
* *DX-MX55MBK is needed (for power supply etc.) when servicing.*

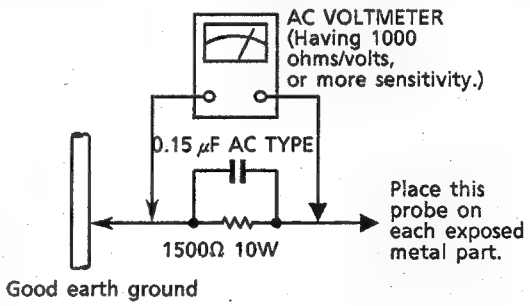
Contents

1051

No.20344
Mar.1992

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, contorl shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularily any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor.
     Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. **DANGER :** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION :** There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. **CAUTION :** The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. **CAUTION :** If safety switches malfunction, the laser is able to function.
6. **CAUTION :** Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
7. **CAUTION :** The compact disc player provides a laser diode of wavelength 780-790nm and optical output power typical 3mW at the laser diode.

VARNING : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

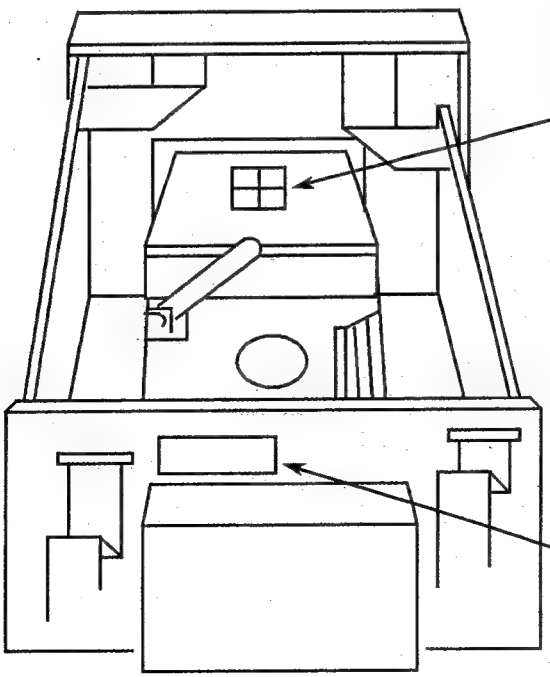
ADVARSEL : Usynlig laserstråling ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

WARNING LABEL

(Except for the U. S. A.)

DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)	VARNING: Osynlig laserstråling när denna del ä öppnad och spärren är urkoppled. Betrakta ej stålen. (s)
ADVARSEL: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude at funktion. Undgåudsættelse for stråling. (d)	VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)



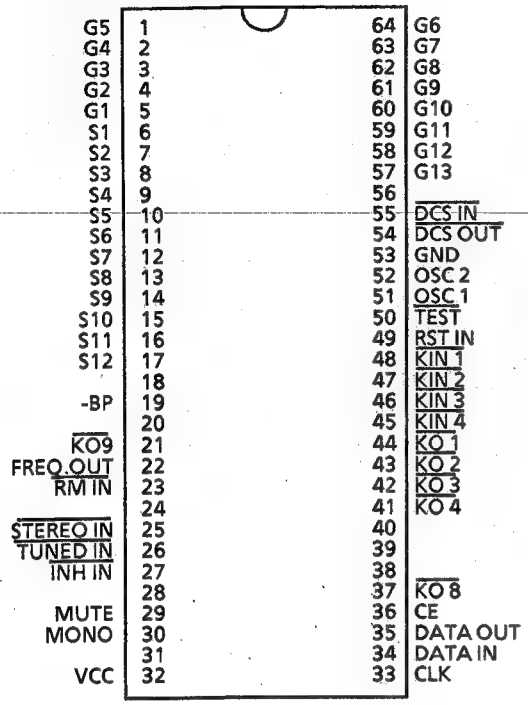
CERTIFICATION
THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE

CERTIFICATION PRINT BY DHHS
(Only for the U.S.A.)

Description of Major LSIs

■ HD614089SC91 (IC201) : Tuner Control & FL Driver

(1) Terminal Layout



(2) Table of Key Matrix

	KEY-IN1	KEY-IN2	KEY-IN3	KEY-IN4
KEY-OUT1		TIMER 1	TIMER 2	DAILY
KEY-OUT2	WAKE-UP /SLEEP	CLOCK ADJ	CANCEL	MEMORY
KEY-OUT3	UP	DOWN	PRESET UP	PRESET DOWN
KEY-OUT4	FM	AM	FM MODE/MUTE	

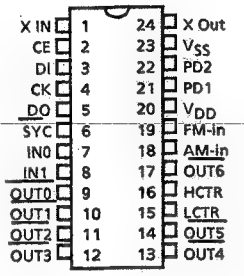
(3) Pin Functions

Pin No.	Name	I/O	Function
1~5	G5~G1	O	FL grid control output
6~17	S1~S12	O	FL segment control output
19	-BP	—	Power supply for FL drive circuit
21	KO9	O	Key matrix output
22	FREQ.OUT	O	Test signal output
23	RM IN	I	Pull up
25	STEREO IN	I	STEREO indicator input
26	TUNED IN	I	Tuned indicator input
27	INH IN	I	Inhibit signal input
29	MUTE	O	Muting output
30	MONO	—	NC
32	VCC	—	Power supply (+5V)
33	CLK	O	Serial clock output to PLL (IC102 : LC7218).
34	DATA IN	I	Serial data input from PLL (IC102 : LC7218).
35	DATA OUT	O	Serial data output to PLL (IC102 : LC7218).
36	CE	O	Chip enable output to PLL (IC102 : LC7218).
37	KO8	O	Key matrix output
41~44	KO4~KO1	O	Key matrix output
45~48	KI4~KI1	I	Key matrix input
49	RST IN	I	Reset signal input
50	TEST	—	Connect to Vcc
51	OSC 1	I	Clock oscillation input
52	OSC 2	O	Clock oscillation output
53	GND	—	GND
54	DCS OUT	O	COMPULINK signal output
55	DCS IN	I	COMPULINK signal input
57~64	G13~G6	O	FL grid control output

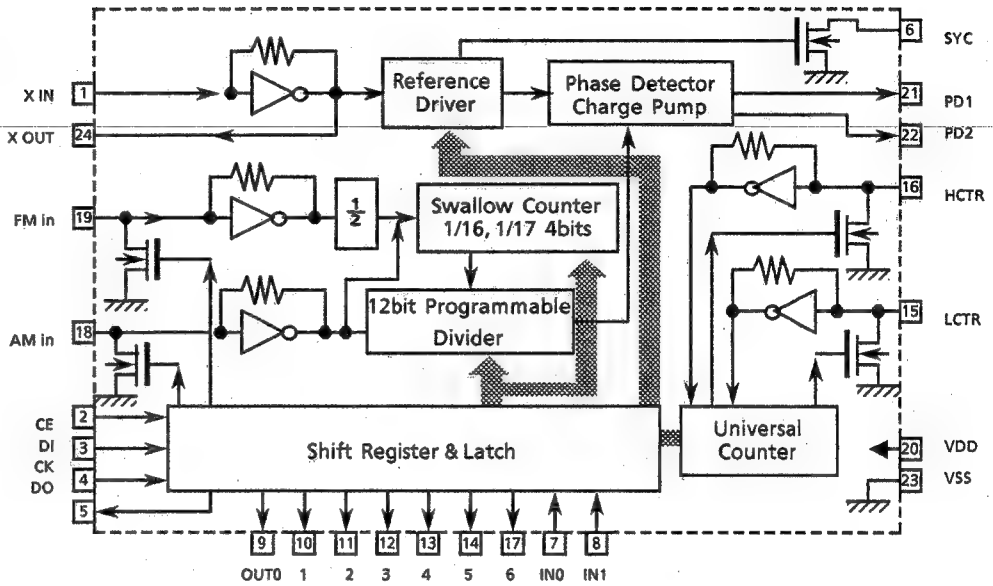
■ LC7218 (IC102) : PLL Synthesizer

1. The main function descriptions
   (1) It makes the local oscillation frequency by the control data from IC102.
   (2) Decode the control signal and transmit the signal for receiving conditions.
   (3) For the best tuning, count the internal-frequency and transmit the data to IC102.

2. Terminal Layout



3. Block Diagram



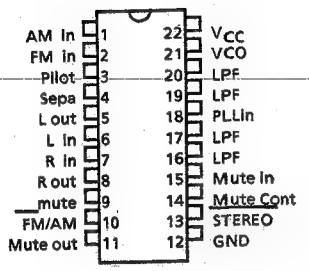
4. Pin Functions

Pin No.	Symbol	Name	I/O	Function
1, 24	X in, X out	X in, X out	I/O	Crystal oscillator (7.2MHz).
2	CE	CE	I	Fix the chip enable to "H" when inputting (DI) and outputting (DO) the serial data.
3	DI	DI	I	Receive the control data from the controller (IC201).
4	CK	CK	I	This clock is used to synchronize data when transmitting the data of DI and DO.
5	DO	DO	O	Transmit the data from LC7218 to the controller which is synchronized with CK.
6	SYC	$\overline{SYC}$	—	Not use
7	IN0	$\overline{Tuned\ in}$	I	Receive the tuned signal from IC104 (LA1266A).
8	IN1	Stop in	I	Not use
9	OUT 0	POWER	O	Not use
10	OUT 1	QSC	O	Not use
11	OUT2	MONO	O	It is "H" on FM-monaural, "L" on FM-stereo.
12	OUT3	$\overline{FM}$	O	It is "L" on FM mode.
13	OUT4	$\overline{MW}$	O	It is "L" on MW mode.
14	OUT5	$\overline{LW}$	O	Not use
15	LCTR	AM-IF	I	Universal counter input for AM-IF from IC104 (LA1266A).
16	HCTR	FM-IF	I	Universal counter input for FM-IF from IC104 (LA1266A).
17	OUT6	IF REQ	O	Output the "IF-signal request" to IC104 when the pin-7 (tuned in) goes to "H".
18	AM in	AM osc	I	Input the local oscillator signal of AM.
19	FM in	FM osc	I	Input the local oscillator signal of FM.
20	V_{DD}	V_{DD}	—	This is a terminal of power supply.
21	PD1	PD1	O	PLL charge pump output : When the local oscillator signal frequency is higher than the reference frequency, high level signals will output. When it is lower than the reference frequency, low level signals will output. When it is same as reference frequency signals, it will be floating.
22	PD2	PD2	O	Not use
23	Vss	Vss	—	GND

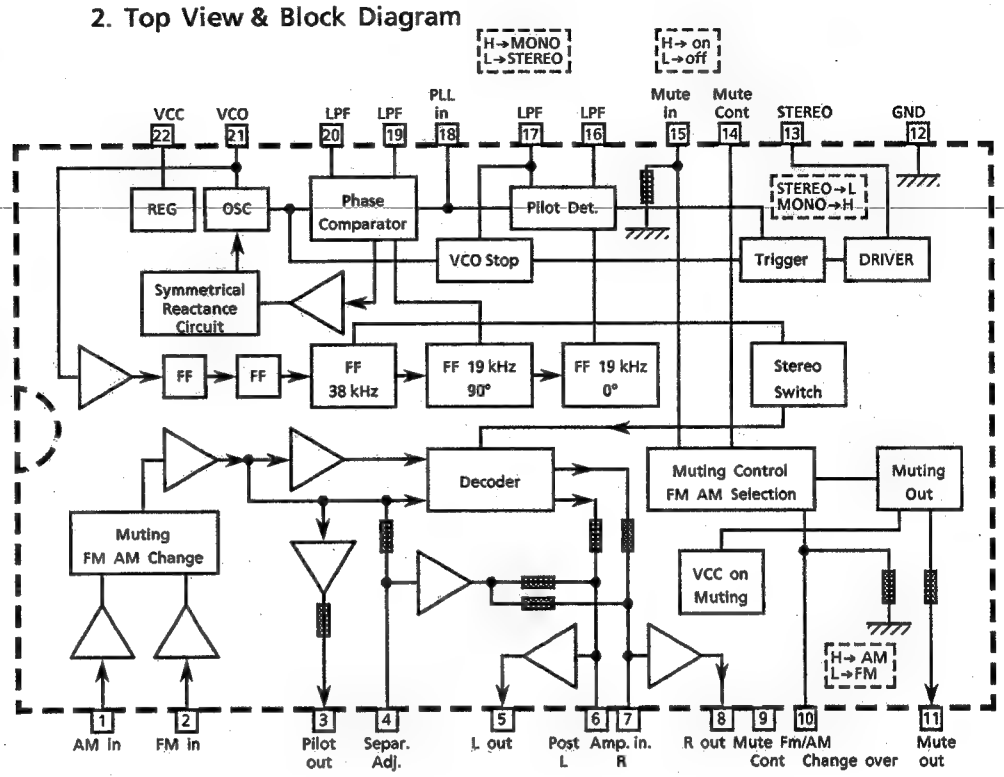
■ LA3401 (IC105) : FM MPX Demodulator

1. The main function descriptions
   (1) Demodulate the FM Multiplex Signal (Stereo signal).
   (2) When receiving FM Stereo Signal, it outputs the signal for indicator.
   (3) AM / FM Audio Amplifier.

(1) Terminal Layout



2. Top View & Block Diagram



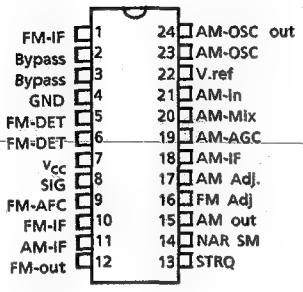
3. Pin Functions

Pin No.	Symbol	I/O	Function
1	AM in	I	This is an input terminal for AM detection signal.
2	FM in	I	This is an input terminal for FM detection signal.
3	Pilot out	O	Output of MPX pilot signal (Connect to Pin18).
4	Sepa. Adj.	—	Separation adjustment.
5	L. out	O	Left channel signal output.
6	L	O	Reversal output of Pin5.
7	R	O	Reversal output of Pin8.
8	R out	O	Right channel signal output
9	Mute Cont	—	The mute time is controlled by the connected capacitor when turning the power switch on.
10	$\overline{\text{FM}}$ / AM	I	Change over the FM / AM input. "H" : AM, "L" : FM
11	Mute out	—	Not use
12	GND	—	Ground terminal.
13	$\overline{\text{Stereo}}$	O	Stereo indicator output. Stereo : "L", Mono : "H"
14	Mute Cont	—	The mute time is controlled by the connected capacitor when changing over the FM / AM .
15	Mute in	I	Mute signal input. "H" : Mute on, "L" : Mute off.
16	LPF	—	Low pass filter of pilot detector.
17	LPF	—	While this terminal goes to "H", the VCO stop.
18	Pilot in	I	PLL input.
19	LPF	—	Low-pass filter of PLL.
20	LPF	—	Low-pass filter of PLL.
21	VCO	I	Voltage controlled oscillator terminal.
22	V_{CC}	—	Power supply.

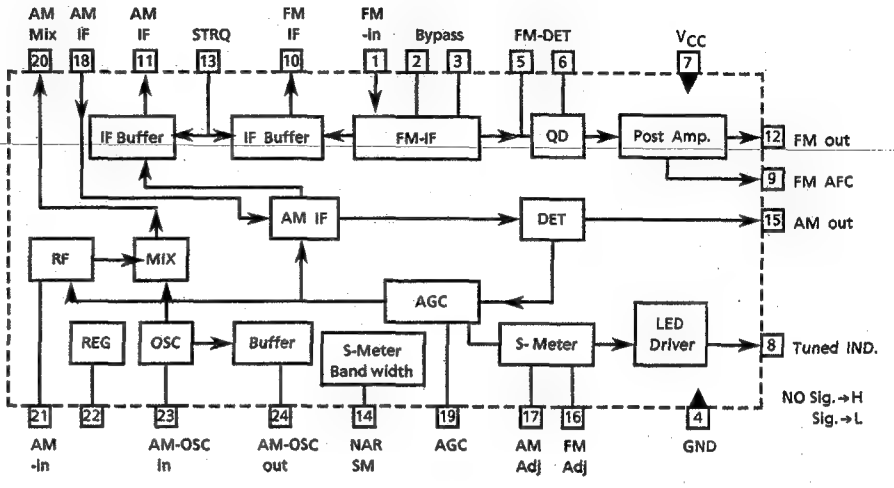
■ LA1266A (IC104) : FM AM IF AMP & detector

1. The main function descriptions
   (1) Amplify and detect of FM intermodulation frequencies.
   (2) It has local oscillator and mixer for AM, and amplify the AM-IF signal.

2. Top View



3. Block Diagram

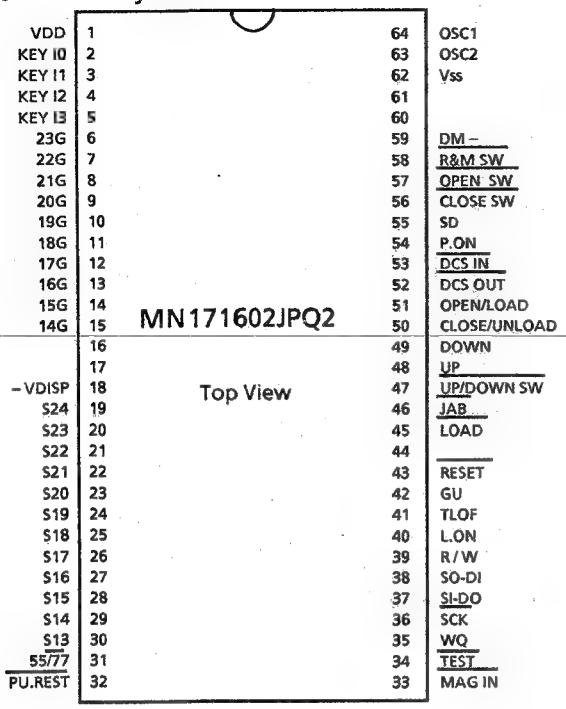


4. Pin Functions

Pin No.	Symbol	I/O	Function
1	FM IF	I	This is an input terminal of FM IF Signal.
2, 3	Bypass	-	Bypass of FM IF Amp.
4	GND	-	This is the device ground terminal.
5, 6	FM DET	-	FM detect transformer.
7	V_{CC}	-	This is the power supply terminal.
8	SIGNAL	O	Mute drive and signal stop drive output when tuning. Active Low
9	FM AFC	O	This is an output terminal of voltage for FM - AFC.
10	FM IF	O	When the IF REQ signal of IC102(LC7218) applies to pin13, the signal of FM IF outputs.
11	AM IF	O	When the IF REQ signal of IC102(LC7218) applies to pin13, the signal of AM IF outputs.
12	FM out	O	FM detection output.
13	STRQ	I	The IF-signals come out from pin10 (FM-IF) or pin11 (AM-IF) while this terminal goes to "High".
14	NAR SM	-	Control the Band-width of AM signal meter.
15	AM out	O	AM detection output.
16	FM Adj	-	For adjust the stop level (or mute level) of FM.
17	AM Adj	-	For adjust the stop level (or mute level) of AM.
18	AM-IF	I	Input of AM IF Signal.
19	AM-AGC	I	This is an AGC voltage Input terminal for AM.
20	AM-MIX	O	This is an output terminal for AM mixer.
21	AM-IN	I	This is an input terminal for AM RF Signal.
22	V.REF	-	Control the Band-width of FM signal meter.
23	AM-OSC	-	This is a terminal of AM Local oscillation circuit.
24	AM-OSC out	O	AM Local Oscillation Signal output.

■ MN171602JPQ2 (IC901) : CD SYSTEM CONTROLLER

1. Terminal Layout



2. Key Matrix

	KEY IN 0	KEY IN 1	KEY IN2	KEY IN3
G14	2	4	6	P
G15	EJECT	1	3	5
G16	+10 ⏮	+1 ⏭	■ /CANCEL	▶ / II
G19	SIDEA/B	CALL	REPEAT	⏏
G20	EDIT	MEMORY	INTRO	P.MODE

3. Pin Functions Description

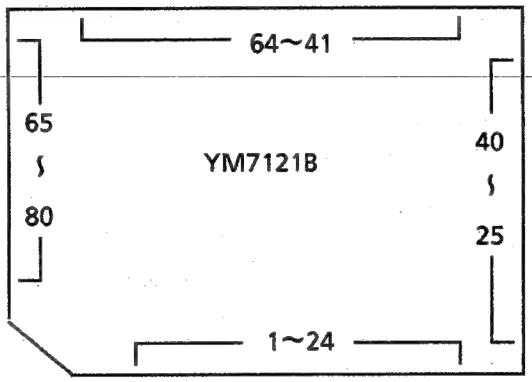
Pin NO.	symbol	I/O	Function	Pin NO.	symbol	I/O	Function
1	VDD	I	Power supply	33	MAG-IN	I	Magazine in signal
2	KEY I0	I	Key matrix input	34	TEST	I	Entering test mode with "L"
3	KEY I1	I	Key matrix input	35	WQ	I	Write request input
4	KEY I2	I	Key matrix input	36	SCK	O	Clock output for data transfers
5	KEY I3	I	Key matrix input	37	SI-DO	I	Serial data input
6	23G	O	FL grid control output	38	SO-DI	O	Serial data output
7	22G	O	FL grid control output	39	R/W	O	Read / Write signal output
8	21G	O	FL grid control output	40	L.ON	O	Turns on laser
9	20G	O	FL grid control output	41	TLOF	O	Tracking servo off signal
10	19G	O	FL grid control output	42	GU	O	Increases tracking gain
11	18G	O	FL grid control output	43	RESET	I	Reset signal input
12	17G	O	FL grid control output	44		-	Connect to GND
13	16G	O	FL grid control output	45	LOAD	I	Disc load detect signal
14	15G	O	FL grid control output	46	JAB	I	JAB switch signal
15	14G	O	FL grid control output	47	UP/DOWN SW	I	Height detection signal
16		-	Non connect	48	UP	O	Lifter driving control signal
17		-	Non connect	49	DOWN	O	Lifter driving control signal
18	-VDISP	I	FL power supply	50	CLOSE/UNLOAD	O	P1 CLOSE or UNLOAD driving control signal.
19	S24	O	FL segment control output	51	OPEN/LOAD	O	P1 OPEN or LOAD.
20	S23	O	FL segment control output	52	DCS OUT	O	Compulink signal output
21	S22	O	FL segment control output	53	DCS IN	I	Compulink signal input
22	S21	O	FL segment control output	54	P.ON	O	H:power off, L:power oN.
23	S20	O	FL segment control output	55	SD	O	LOAD drive speed Down output.
24	S19	O	FL segment control output	56	CLOSE SW	I	"L" with tray closed
25	S18	O	FL segment control output	57	OPEN SW	I	"L" with tray opened
26	S17	O	FL segment control output	58	R&M SW	I	Reset&Memory SW input.
27	S16	O	FL segment control output	59	DM-	I	Spindle signal input
28	S15	O	FL segment control output	60		-	Connect to GND
29	S14	O	FL segment control output	61		-	Non connect
30	S13	O	FL segment control output	62	Vss	-	GND
31	55/77	I	Chip select input (H:55,L:77)	63	OSC2	O	Clock oscillation output
32	PU.REST	I	"L" with pickup at rest position	64	OSC1	I	Clock oscillation input

■YM7121B(IC401)

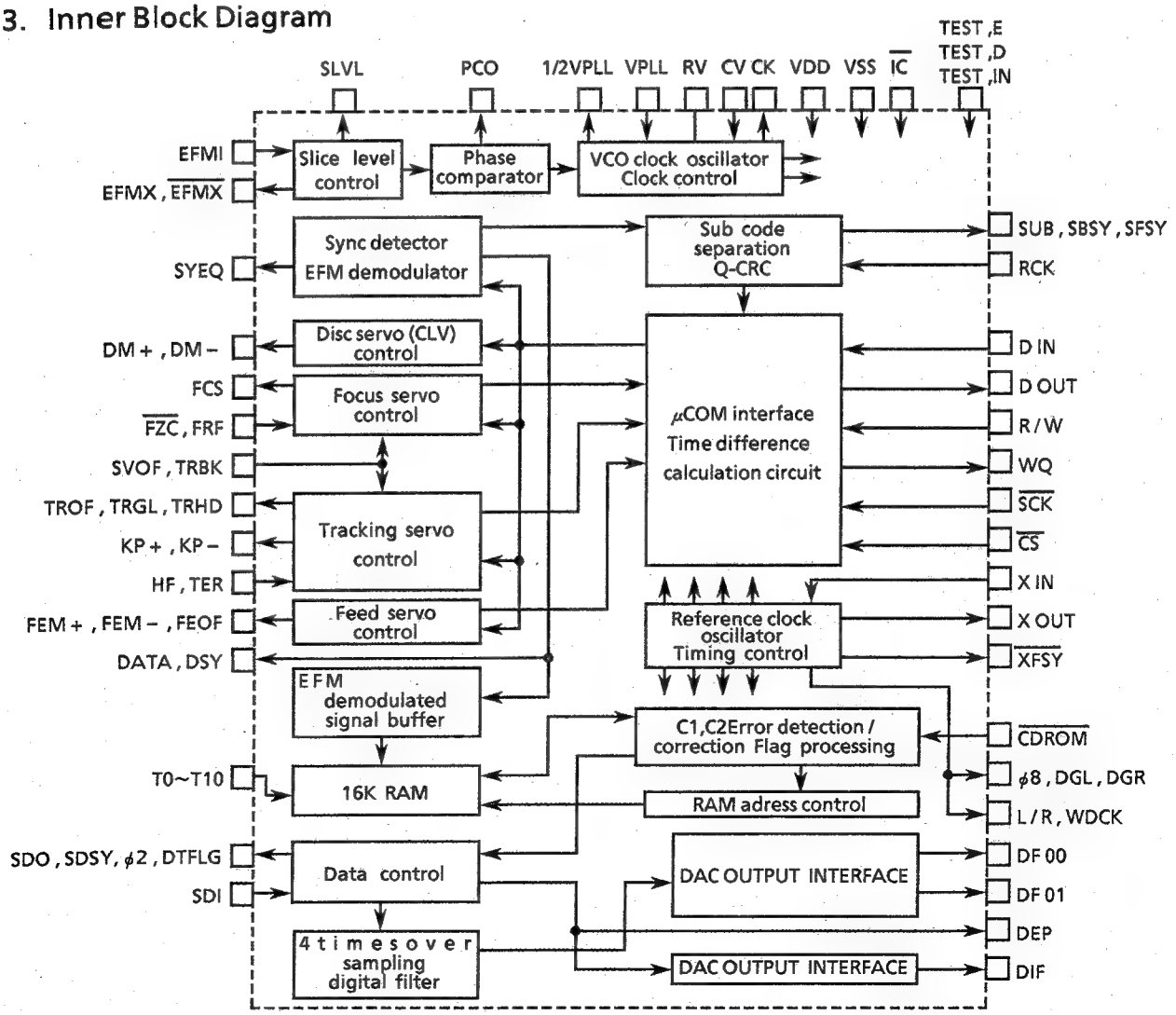
1. Outline

YM7121 is a C-MOS LSI for signal processing and servo control (SVC) in a CD player. It is used for the demodulation of the EFM signal from the laser pick up , detection / correction of the error signal , signal processing in digital filtering , etc. and for various servo controls (focusing , disc , tracking and feed servos).
And it contains digital interface which output the audio digital signals in S-RAM and CD-player. This digital interface matches EIAJ standards.

2. Top View



3. Inner Block Diagram



4. Pin Functions Description

Pin No.	Symbol	I/O	Function
1	CV	I	Adequate time constant is added to this terminal and input the PCO output. This makes the structure of clock reproduce circuit by inner VCO circuit.
2	RV	—	RV terminal is standard voltage terminal of inner VCO. And capacity for stabilizing is added to this terminal.
3 32 72	VDD	—	These are +5V power supply terminals.
4 5 70	TEST. IN TEST. E TEST. D	I I I	These terminals are for test.
6	SYEQ	O	This is the check output terminal, it becomes high when flame synchronizing signal detected from EFM pattern coincides frame synchronizing signal from internal counter.
7	DSY	O	DSY is synchronizing signal which becomes high when first signal of data output comes in. This terminal is the check terminal.
8	DATA	O	This terminal is for checks. The DATA is a serial signal of CK bit rate and it contains 8 bit EFM demodulation signal and 5 bit data control signal in 17 bit.
9	CK	O	CK has 4.3218 MHz clock.
10~19	T0~T9	I	This terminal is internal RAM test terminal, and connected GND.
22	DEP	O	De-emphasis is necessary when this terminal is high.
23	DIF	O	DIF is digital audio interface format output matched EIAJ standards.
24	SDO	O	SDO is a serial signal output of $\phi 2$ bit rate. (The MSB puts in at first.)
25	SDI	I	SDI is the input terminal of 4 times over sampling digital filter. It is usually connected with SDO.
26	SDSY	O	This terminal changes the Lch / Rch by LSB of the SDO.
27	DTFLG	O	Not used.
28	$\phi 2$	O	$\phi 2$ is 2.1168 MHz crystal clock.
29, 52, 77	VSS	—	GND
30 31	XOUT XIN	O I	The clock frequency is generated by crystal oscillator (16.9344MHz) and connecting capacitors each pin.
33 34 35 36 37 38	$\overline{\text{XFSY}}$ SUB SBSY RCK $\overline{\text{SFSY}}$ CDROM	O O O I O O	Not used.
39	$\phi 8$	O	$\phi 8$ is 8.4672MHz crystal clock.
40 41	WDCK L/R	O O	This is synchronizing signal for data transfer and it connects with DAC.
42 43	DGL DGR	O O	Not used.
44 45	DF01 DF00	O O	Serial data output. (Right channel.) Serial data output. (Left channel.)
46	$\overline{\text{SCK}}$	I	This terminal is connected to μCOM. It is an input terminal that carries the clock signal for data transfers.
47	R/W	I	This connects with microcomputer and it is an output terminal for switching data transmission mode. it enables to transmit data from SVC to microcomputer when R/M is "L" and from microcomputer to SVC when R/W is "H".
48	$\overline{\text{CS}}$	I	This is a chip select terminal for YM7121B.
49	DOUT	O	This terminal is the data output terminal connected to μCOM. When R/W is low, data is transferred from YM7121B to μCOM, according to theSCK clock input.

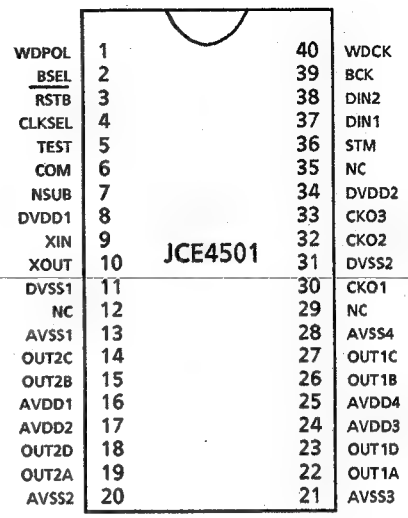
Pin No.	Symbol	I/O	Function
50	WQ	O	This terminal is connected to μCOM. It is a request signal which demands to μCOM inputting the data transfer (YM7121B to μCOM).
51	DIN	I	This is a data input terminal connected to μCOM. When R/W is high, the data is transferred from μCOM to YM7121B according to the SCK clock input.
53 54	DM+ DM−	O O	These terminals output the PWM to control the speed of spindle motor. The speed of the motor goes up when DM+ is high, and slows down when DM− is high: both terminals can not become high simultaneously.
55 56 60 61 62 63 64	HF TER TRHD TRGL TROF KP− KP+	I I O O O O O	When tracks are being crossed during serches, the amplitude variation of the generated HF signal is sampled at the zero−cross point of the tracking error signal TER and the TROF signal is output. The level variations of this signal turn the servo on and off, greatly facilitaing track acquisition. KP+ or KP− is output to conduct tracking, and TRHD is output during tracking to cause generation of the tracking error signal. The TRGL signal is for increasing the tracking gain after tracking is completed.
57 58 59	FEM+ FEM− FEOF	O O O	The FEM+ and FEM− are output as high speed feed signals, and FEOF signal is output for cutting the feed servo during high speed feed.
65	TRBK	I	TRBK is input to apply tracking brake from outside. TRGL becomes low with high input and inner control signal TBKE becomes high.
66	SVOF	I	When the signal inputs to SVOF, tracking and feed srvo set to OFF. TROF and FEOF become "H" with high input, and TRHD, KP+, KP− become low.
67 68 69	$\overline{FZC}$ FCS FRF	I O I	These terminals are used for controlling the focus servo. The FCS is for a leading signal of Focusing; the signal, generated when the focus point is achieved, terminate the focusing operation; and FCO flag is dropped internally by FRF signal generated when reflected light is detected.
71	$\overline{IC}$	I	YM7121B needs initializing when power supply turn on. IC will be low more than 400μs since XIN is input clock with VDD standard.
73 74 75	SLVL EFMX $\overline{EFMX}$	O O O	Amplitude limited, mutually anti-phased signals are output from EFMX and $\overline{EMFX}$. Slice level is controlled by these signals and external amplifier. SLVL is output amplitude alteration component of both terminals. When integral circuit is connected to external. YM7121B easily can control slice level.
76	EFMI	I	This terminal is input EFM signal. (1~2 Vpp)
78	PCO	O	This terminal outputs the phase difference when the polarity of the clock and the EFM pattern changes.
79	VPLL	I	This terminal is input D.C. voltage matched VCO free run frequency. (17.2872 MHz)
80	1/2 VPLL	O	This terminal outputs a half of VPLL input, and capacity for stabilizing is added to this terminal.

■ JCE4501(IC703)··· D/A CONVERTER

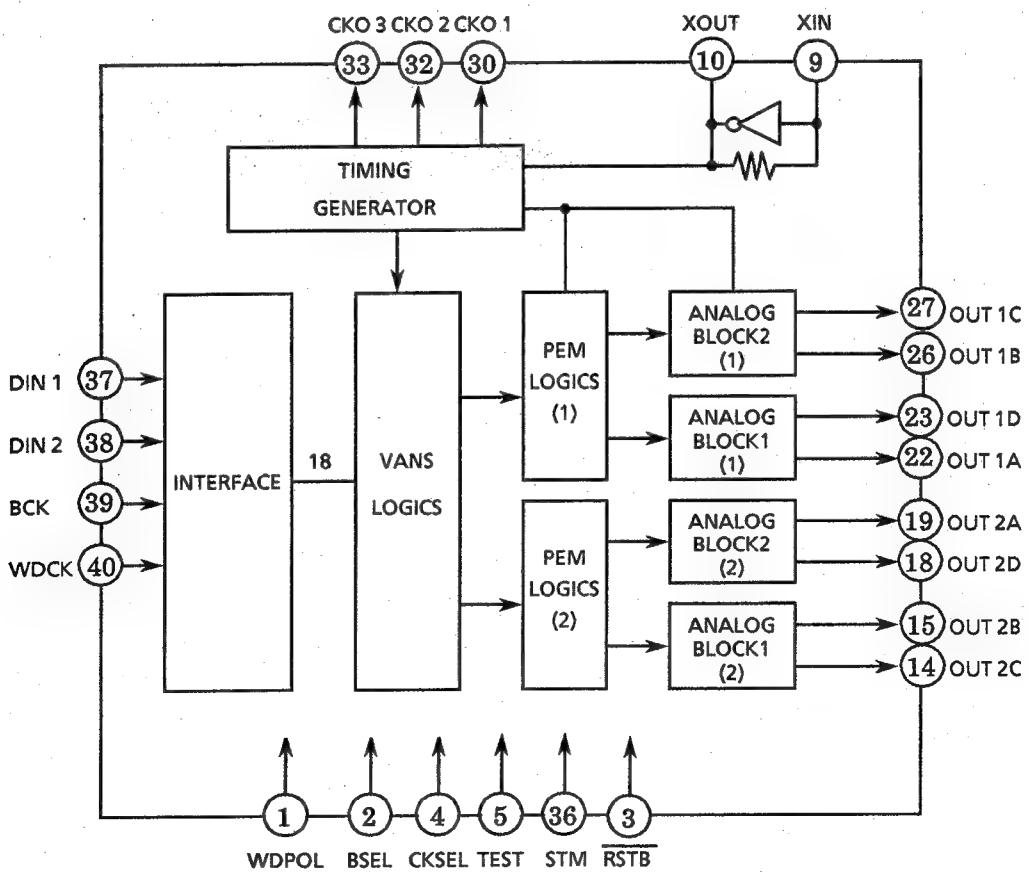
1. Outline

The JCE4501 is a CMOS digital-analog converter with independent left and right channels. It was developed for PCM digital audio equipment. It features pulse edge modulation (PEM) and Victor advanced noise shaping (VANS) for resolution equivalent to 20 bits (0-20 kHz) and a low distortion ratio. At JVC, this type of digital-analog converter is called a DD converter.

2. Terminal Layout



3. Internal Block Diagram

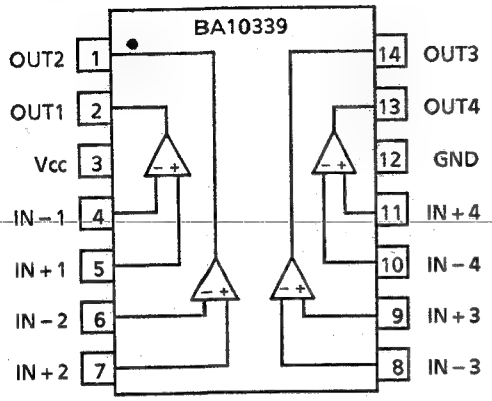


4. Pin Functions Description

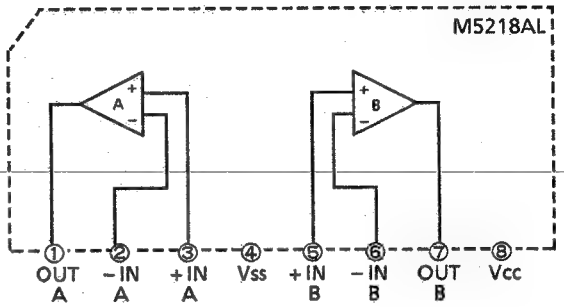
Pin No.	Symbol	I/O	Function
1	WDPOL	I	Word data polarity switching pin
2	BSEL	I	High : CXD 2554P format, low : YM3414 format
3	$\overline{\text{RSTB}}$	I	Reset pin (low active)
4	CLKSEL	I	High: 256Fs mode, low: 384 Fs mode
5	TEST	I	Test mode switching pin
6	COM	I	COM board voltage fastening pin (connected to D-VDD)
7	NSUB	I	Silicon board voltage fastening pin (connected to D-VDD)
8	DVDD1	—	Digital power supply pin 1
9	XIN	I	Crystal oscillator input pin
10	XOUT	O	Crystal oscillator output pin
11	DVSS1	—	Digital ground pin 1
12	NC	—	To ground
13	AVSS1	—	Analog ground pin 1
14	OUT2C	O	2C PEM output pin
15	OUT2B	O	2B PEM output pin
16	AVDD1	—	Analog power supply pin 1
17	AVDD2	—	Analog power supply pin 2
18	OUT2D	O	2D PEM output pin
19	OUT2A	O	2A PEM output pin
20	AVSS2	—	Analog ground pin 2
21	AVSS3	—	Analog ground pin 3
22	OUT1A	O	1A PEM output pin
23	OUT1D	O	1D PEM output pin
24	AVDD3	—	Analog power supply pin 3
25	AVDD4	—	Analog power supply pin 4
26	OUT1B	O	1B PEM output pin
27	OUT1C	O	1C PEM output pin
28	AVSS4	—	Analog ground pin 4
29	NC	—	To ground
30	CKO1	O	Clock output pin 1 (384 Fs output)
31	DVSS2	—	Digital ground pin 2
32	CKO2	O	Clock output pin 2 (192 Fs output)
33	CKO3	O	Clock output pin 3 (128 Fs output)
34	DVDD2	—	Digital power supply pin 2
35	NC	—	Not connected
36	STM	I	Stereo/monaural switching pin (high: stereo output, low: left channel, reversed polarity left channel)
37	DIN1	I	Left channel 18-bits 8Fs serial data input pin
38	DIN2	I	Right channel 18-bits 8Fs serial data input pin
39	BCK	I	Bit clock input pin
40	WDCK	I	Word clock input pin

Internal Block Diagrams of Other ICs

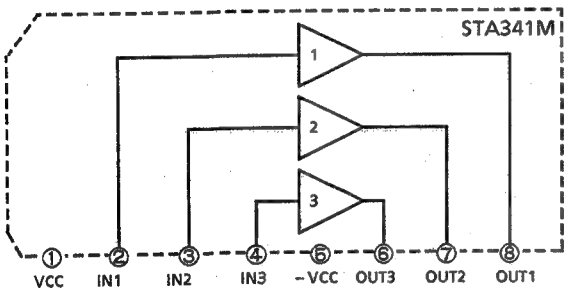
■ BA10339 (IC502) : Comparator



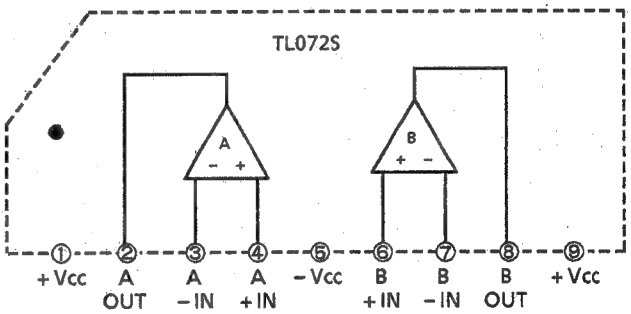
■ M5218AL (IC503,701,702,802,851,871)
: Dual OP Amp.



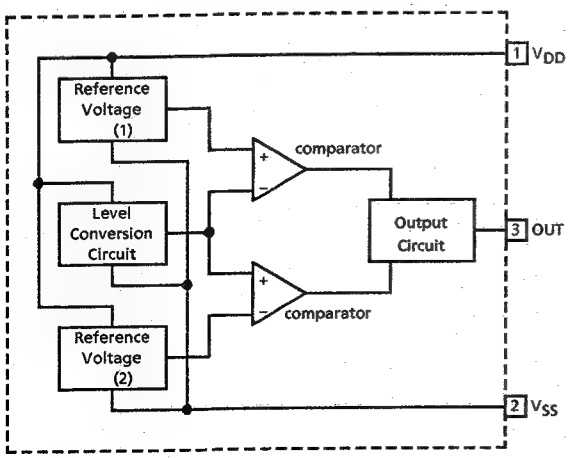
■ STA341M (IC801) : Motor Driver



■ TL072S (IC501) : Dual OP Amp.



■ MN1280 (P.Q) : IC902 RESET IC
MN1281 (P.Q) : IC902 RESET IC

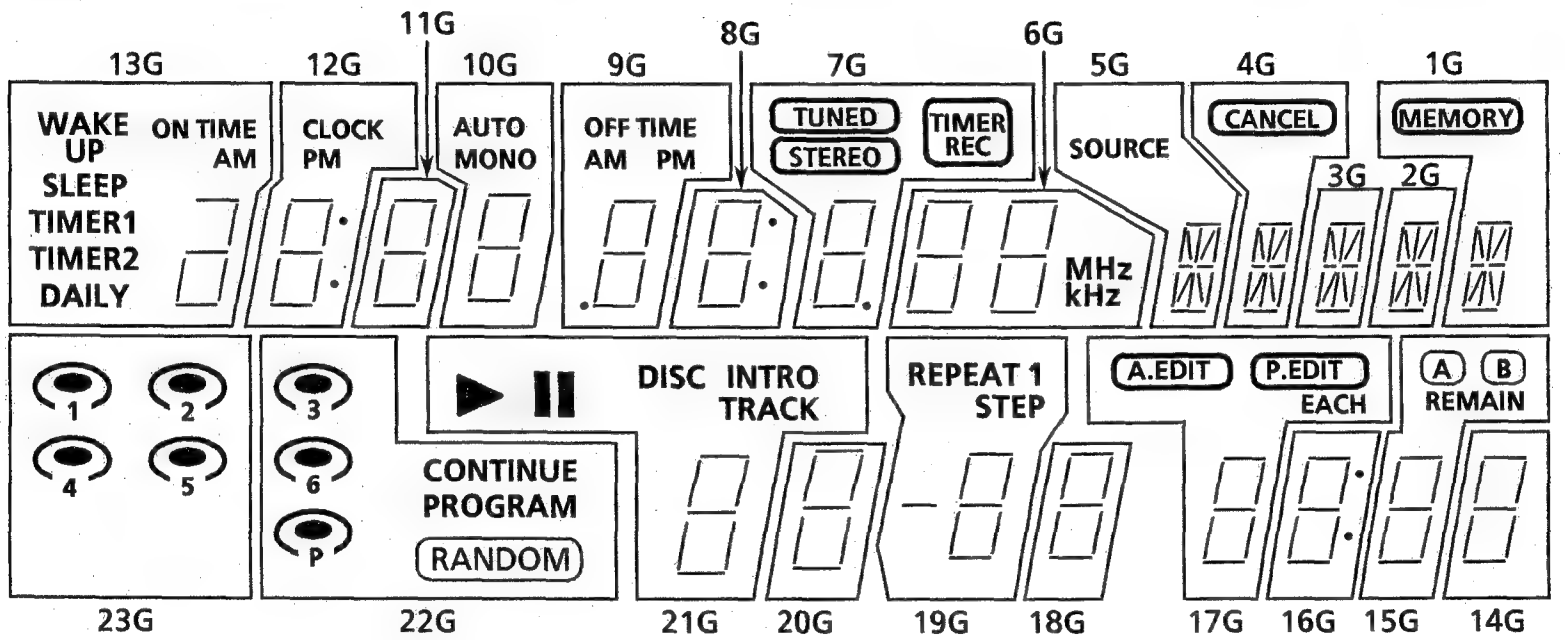


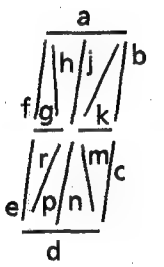
Pin No.	Pin Name	Functions
1	V_{DD}	Power supply
2	V_{SS}	Ground
3	OUT	Reset signal output : Low level is output when resetting : High level is output when cancelling the reset.

Internal Wiring of the FL Display Tube

■ ELU0001-135:(FL201)

1.Grid Assignment





2.Pin Connection

TERMINAL NO. ELECTRODE	1 F1	2 F1	3 F1	4 NP	5 NP	6 13G	7 12G	8 11G	9 10G	10 9G	11 8G	12 7G	13 6G	14 5G	15 4G	16 3G	17 2G	18 1G	19 P S1	20 P S2
TERMINAL NO. ELECTRODE	21 P S3	22 P S4	23 P S5	24 P S6	25 P S7	26 P S8	27 P S9	28 P S10	29 P S11	30 P S12	31 NP	32 NP	33 23G	34 22G	35 21G	36 20G	37 19G	38 18G	39 17G	40 16G
TERMINAL NO. ELECTRODE		41 15G	42 14G	43 P S24	44 P S23	45 P S22	46 P S21	47 P S20	48 P S19	49 P S18	50 P S17	51 P 16	52 P S15	53 P S14	54 P S13	55 NP	56 NP	57 F2	58 F2	59 F2

Notes F : Filament NP : No Pin
G : Grid P : Anode

3.Anode Connection Table

	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	d	d	d	d	d	d	d	d	d	d	d	d	d
S2	-----	e	e	e	e	e	e	e	e	e	e	e	e
S3	c	c	c	c	c	c	c	c	c	c	c	c	c
S4	g	-----	-----	-----	-----	-----	-----	KHz	r	r	r	r	m
S5	b	col (:)	-----	-----	DP (.)	col (:)	DP (.)	MHz	k	n	n	n	n
S6	DAILY	-----	-----	-----	AM	-----	STEREO	i	j,p	j,p	j,p	j,p	j,p
S7	TIMER 2	g	g	g	g	g	g	g	g,m	g,m	g,m	g,m	g
S8	TIMER 1	f	f	f	f	f	f	f	f	f	f	f	f
S9	SLEEP	b	b	b	b	b	b	b	b	b	b	b	b
S10	WAKE UP	a	a	a	a	a	a	a	a	a	a	a	a
S11	AM	PM	----	MONO	PM	----	TUNED	j	h	h	h	h	h,k
S12	ON TIME	CLOCK	----	AUTO	OFF TIME	----	TIMER REC	h	SOURCE	CANCEL	k	k	MEMORY

	23G	22G	21G	20G	19G	18G	17G	16G	15G	14G
S13	⬭	CONTINUE	DISC	----	▭	-----	-----	-----	----	----
S14	⬭	⬭	TRACK	----	STEP	-----	EACH	col (:)	REMAIN	----
S15	●	●	a	a	a	a	a	a	a	a
S16	5	6	b	b	b	b	b	b	b	b
S17	⬭	●	c	c	c	c	c	c	c	c
S18	4	RANDOM	d	d	d	d	d	d	d	d
S19	●	P	e	e	e	e	e	e	e	e
S20	●	PROGRAM	f	f	f	f	f	f	f	f
S21	1	⬭	g	g	g	g	g	g	g	g
S22	⬭	⬭	▶	----	REPEAT	-----	P.EDIT	-----	A	----
S23	●	●	▮▮	----	1	-----	-----	-----	B	----
S24	2	3	INTRO	----	----	-----	A.EDIT	-----	----	----

Disassembly Procedures

1. Removing the top cover

1) Remove the 2 screws fastening both sides of the Top Cover, and the 2 screws fastening the rear sides.
2) Remove the Top Cover.

2. Removing the front panel

1) Remove the 3 hooks.
2) Remove the 1 screw fastening bottom of the Front Panel.
3) Disconnect the connectors. (JB221,JB222)
4) Remove the Front Panel.

3. Removing the changer assembly

1) Remove the top cover.
2) Remove the front panel.
3) Remove the 2 screws Ⓑ fastening the changer assembly.
4) Disconnect the connectors. (ⒸⒹⒺⒻⒼ)
5) Slide the changer assembly to arrow direction ①.
6) Remove the changer assembly.
   * NOTICE (for reinstalling)
     Wire Ⓗ should be set as Fig.2.

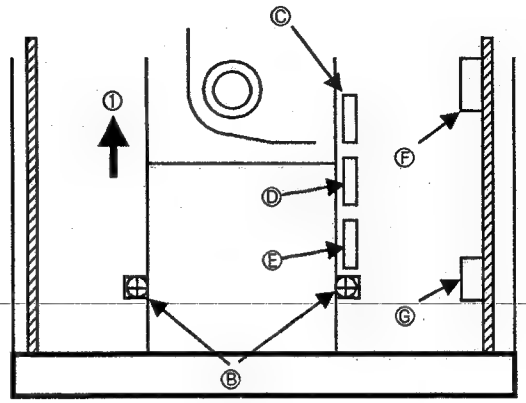


Fig.1

4. Removing the turntable base (Fig.2)

1) Remove the changer assembly.
2) Turn over the changer assembly.
3) Remove the 3 screws Ⓘ.
   * NOTICE : The left side spring differs from the right side ones.
4) Take the turntable base out.

5. Exchanging the pickup (Fig.2)

1) Remove the screw Ⓙ, and remove the feed nut support .
2) Remove the screw Ⓚ.
3) Remove the Feed Screw assembly, and remove the Pickup with the pickup shaft .
4) Exchange the pickup.

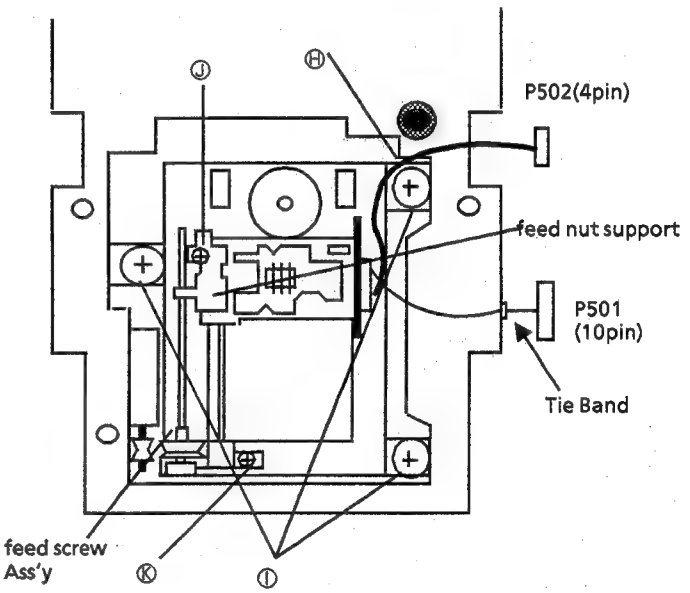
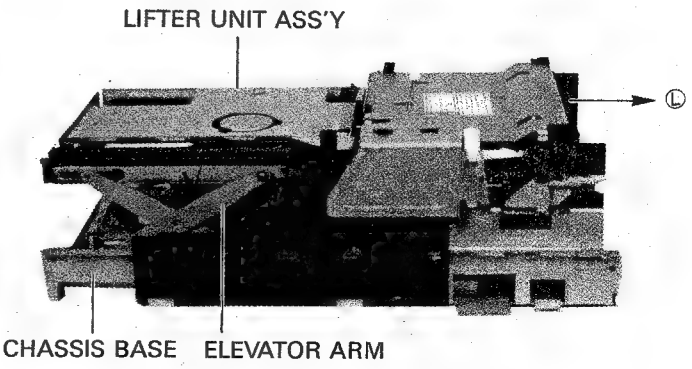


Fig.2

6. Removing the magazine holder (Fig.3)

1) Remove the 2 screws fastening the magazine holder .
2) Slide the magazine holder to arrow direction Ⓛ.
3) Remove the magazine holder to upside , and remove the tray stopper at the same time.



7. Removing the LIFTER UNIT Ass'y (Fig.3)

1) Remove the MAGAZINE HOLDER.
2) Lift the LIFTER UNIT Ass'y to the top position.
3) Remove the ELEVATOR ARMS from the CHASSIS BASE and the LIFTER UNIT Ass'y.
4) Remove the LIFTER UNIT Ass'y.

※ The LIFT CAM can be released, After removing the LIFTER UNIT Ass'y (Fig.7)

1) When installing the lift cam, Put the cam slider to the position shown in fig 7.
2) Install the changer assembly.
3) Set the power ON to operate the mechanism.
4) Set the power OFF while the disc is playing.
5) Connect the AC power again. In this case the unit will be reseted.

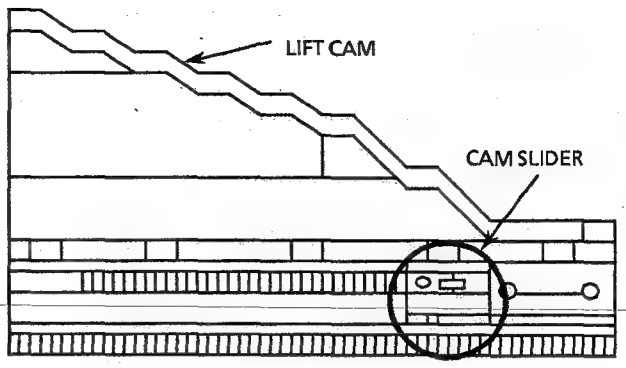
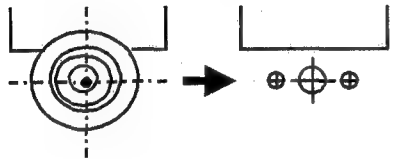


Fig.4

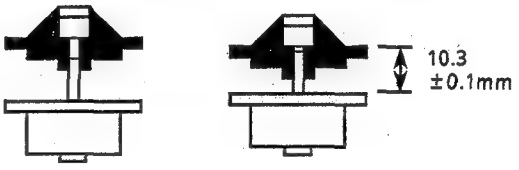
8. Removing the spindle motor

1) Remove the TURN TABLE BASE.
2) Turn over TURN TABLE BASE.
3) Remove the pressed-in turntable.
4) Remove the 2 screws fastening the motor.
5) Remove the spindle motor.

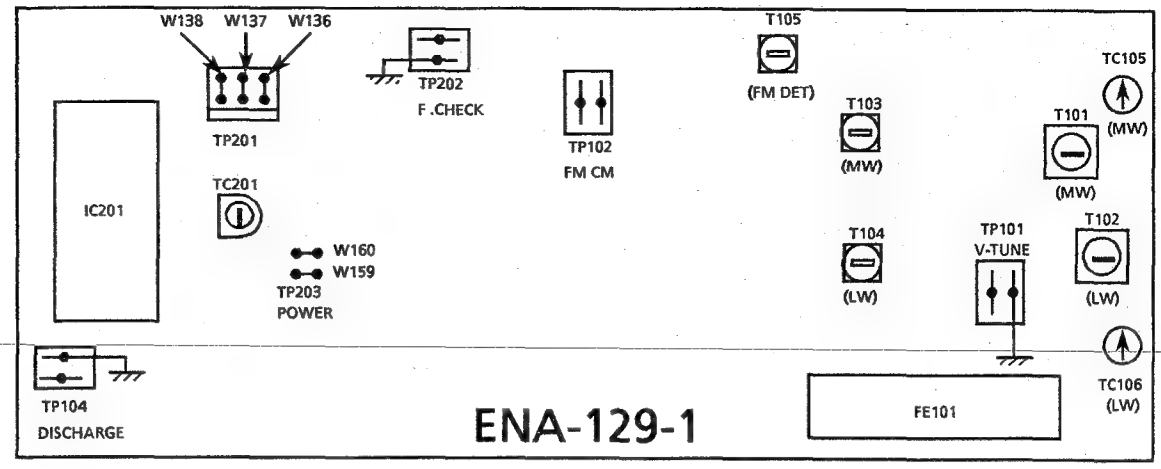


9. Mounting the spindle motor

1) Alternately tighten the 2 screws.
2) Fit the turntable by pressing gently at the centre to obtain a distance of 10.3mm ± 0.1mm from the mechanism base to the top of the turntable.



FM / AM Tuner Alignment Procedures



1. FM section

■ FM oscillator

(1) Set the frequency display to "108.0MHz".
(2) Confirm that the FM inter-station noise is received.
(3) Confirm that the voltage of test point "TP101" becomes 8.0 ± 2.0V.
(4) Set the frequency display to "87.5MHz" and confirm the voltage of test point "TP101" becomes 1.6 ± 1.0V.

■ FM detector coil : T105

(1) Connect a digital voltmeter to test point "TP 102", and receive to "100.1MHz" signal with SSG ATT 70dB.
(2) Adjust T105 so that the digital voltmeter reads 0 ± 1.5mV.

2. LW section

Note : < > : Italy

■ LW oscillator : T104

(1) Set the frequency display to 144kHz and adjust T104 so that the voltage of TP101 becomes 0.8 ± 0.4V <0.8 ± 0.1V> .
(2) Set the frequency display to 353kHz <290kHz> and confirm that the voltage of test point TP101 becomes 8.0 ± 0.9V <5.7 ± 0.5V>.

■ LW antenna coil : T102

(1) Connect a loop antenna to the "AM Loop" terminal on the rear panel.
(2) Adjust T102 to obtain the best receiving sensitivity on 164kHz <164kHz> .

■ LW antenna trimmer : TC106

(1) Adjust TC106 to obtain the best receiving sensitivity on 353kHz <245kHz> .

3. MW section

Note : ( ) : Australia , the U.K. and Continental Europe
{ } : Channel space 9kHz for universal version
⌈ ⌋ : Channel space 10kHz for universal version

■ MW oscillator : T103

(1) Set the frequency display to (522kHz) {531kHz} ⌈ 530kHz ⌋ and confirm that the voltage of test point TP101 becomes (0.9 ± 0.2V) {1.0 ± 0.2V} ⌈ 1.0 ± 0.2V ⌋ .
(2) Set the frequency display to (1629kHz) {1602kHz } ⌈ 1600kHz ⌋ and confirm that the voltage of test point TP101 becomes (7.5 ± 0.8V) { 7.2 ± 0.7V } ⌈ 7.2 ± 0.7V ⌋ .
(3) If its voltage exceeds the allowance , adjust T103 to obtain the voltage .

■ MW antenna coil : T101

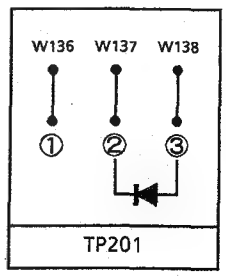
(1) Connect a loop antenna to the "AM Loop" terminal on the rear panel.
(2) Adjust T101 to obtain the best receiving sensitivity on 600kHz or 603kHz .

■ MW antenna trimmer : TC105

(1) Adjust TC105 to obtain the best receiving sensitivity on 1400kHz or 1404kHz .

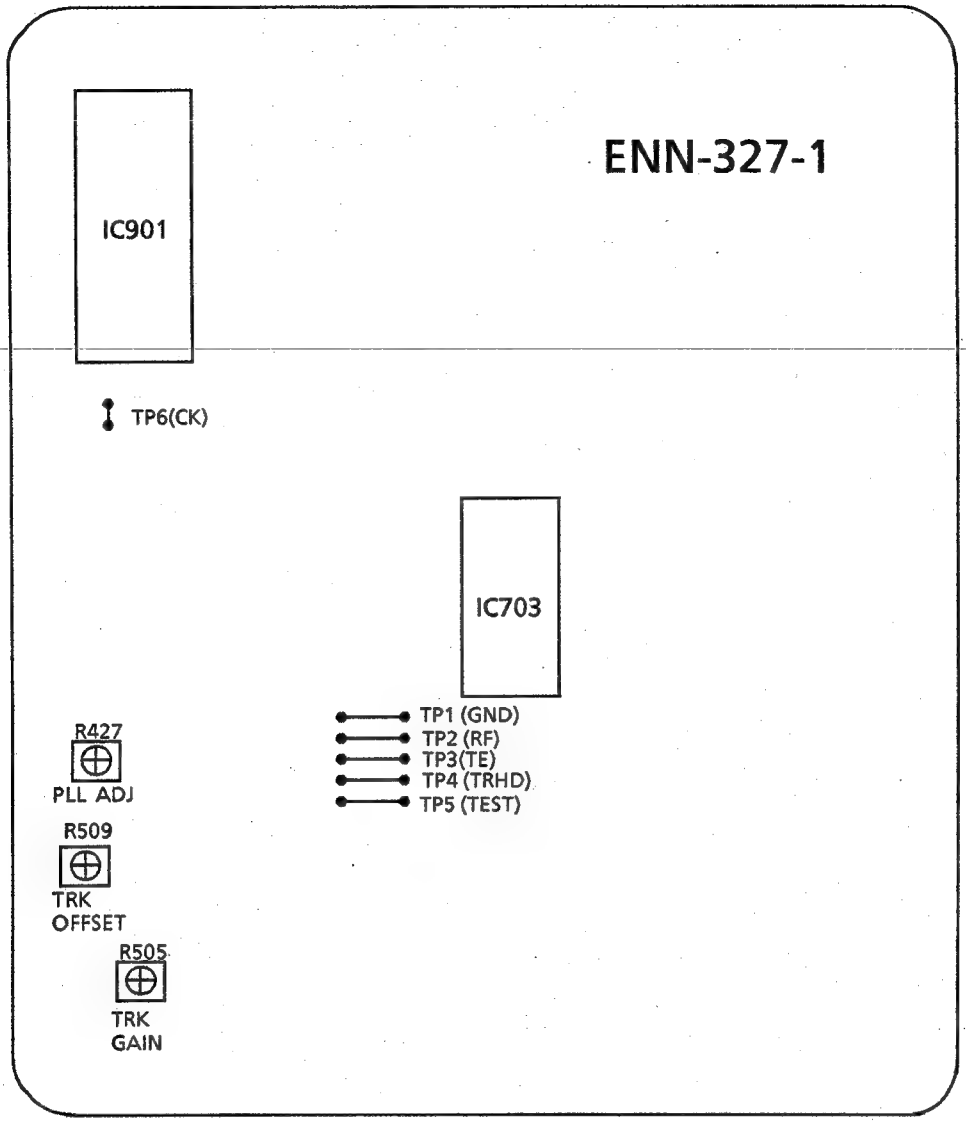
Clock Generator Frequency Adjustment

1. Switch OFF the DX-MX55MBK's power source, then pull out the AC plug.
2. Short circuit TP201's terminals ② and ③ with the diode as shown in the accompanying diagram, then insert the AC plug into the receptacle to switch the power ON.
3. Confirm that the tuner's FL display is off, then remove the diode and connect the frequency counter to TP 202(FREQ. CHECK).
4. Adjust TC201 so that the counter becomes 34,952.5 ± 0.15 Hz .



Example :
1SS133
1SS119
1S2473

CD Adjustment Procedures



(1) PLL free-running adjustment

a. Measuring instrument
Frequency counter

b. Adjusting procedure
1. Connect a frequency counter with TP6 (CK) and TP1 (GND) on the main PC board.
2. Adjust R427 for setting the frequency counter's value becomes 4.295±0.005MHz. (On the STOP MODE)
3. Perform this adjustment immediately after the power is turned on.

(2) Tracking offset adjustment

a. Measuring instruments
Oscilloscope, Normal disc

b. Adjusting procedure
1. Connect an oscilloscope with TP3 (TE) and TP1 (GND) on the main PC board.
2. Play the disc.
3. Short circuit TP5 (TEST) to TP1 (GND).
4. Adjust R509 for Zero DC offset of the tracking error waveform.

Note: The tracking error waveform should be symmetrical around the 0V level.

(3) Tracking gain adjustment

a. Measuring instruments
Oscilloscope, Normal disc

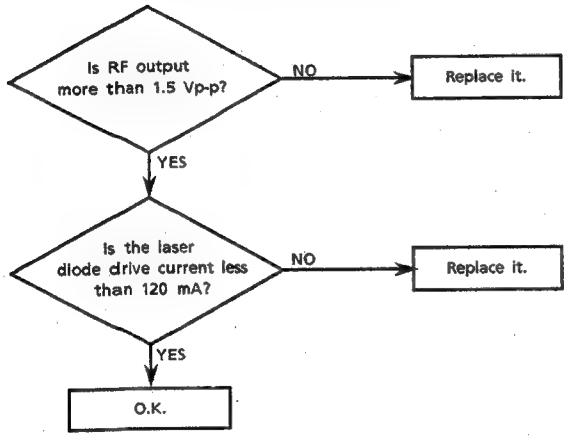
b. Adjusting procedure
1. Connect an oscilloscope with TP3 (TE) and TP1(GND) on the main PC board.
2. Play the disc.
3. Short circuit TP5 (TEST) to TP1 (GND).
4. Adjust R505 for 2.0 VP-P of tracking error signal.

Maintenance of Laser Pickup

(1) Life of the laser diode

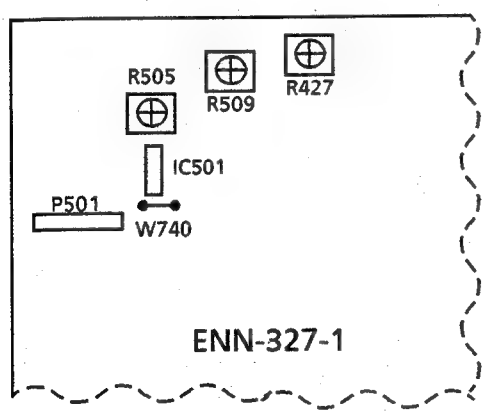
When the life of the laser diode has expired, the following symptoms will appear.

1. The level of RF output (EFM output: amplitude of eye pattern) will be low.
2. The drive current required by the laser diode will be increased.
   In such a case, check the life of the laser diode following the flowchart below



(2) Measurement of laser diode drive current

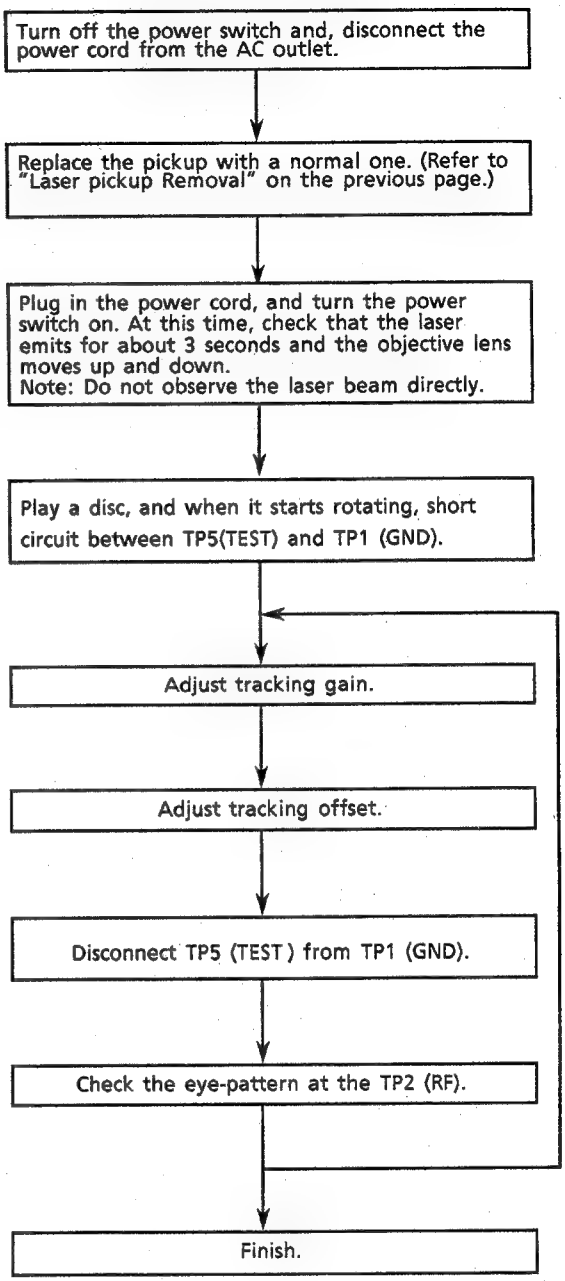
Replace the jump wire (W740) shown below with the resistor (1Ω).
Measure the voltage across the resistor with a milli-voltmeter. When the voltage is more than 120mV, it shows that the life of the laser diode has expired



(3) Semi-fixed resistor on the APC PC board

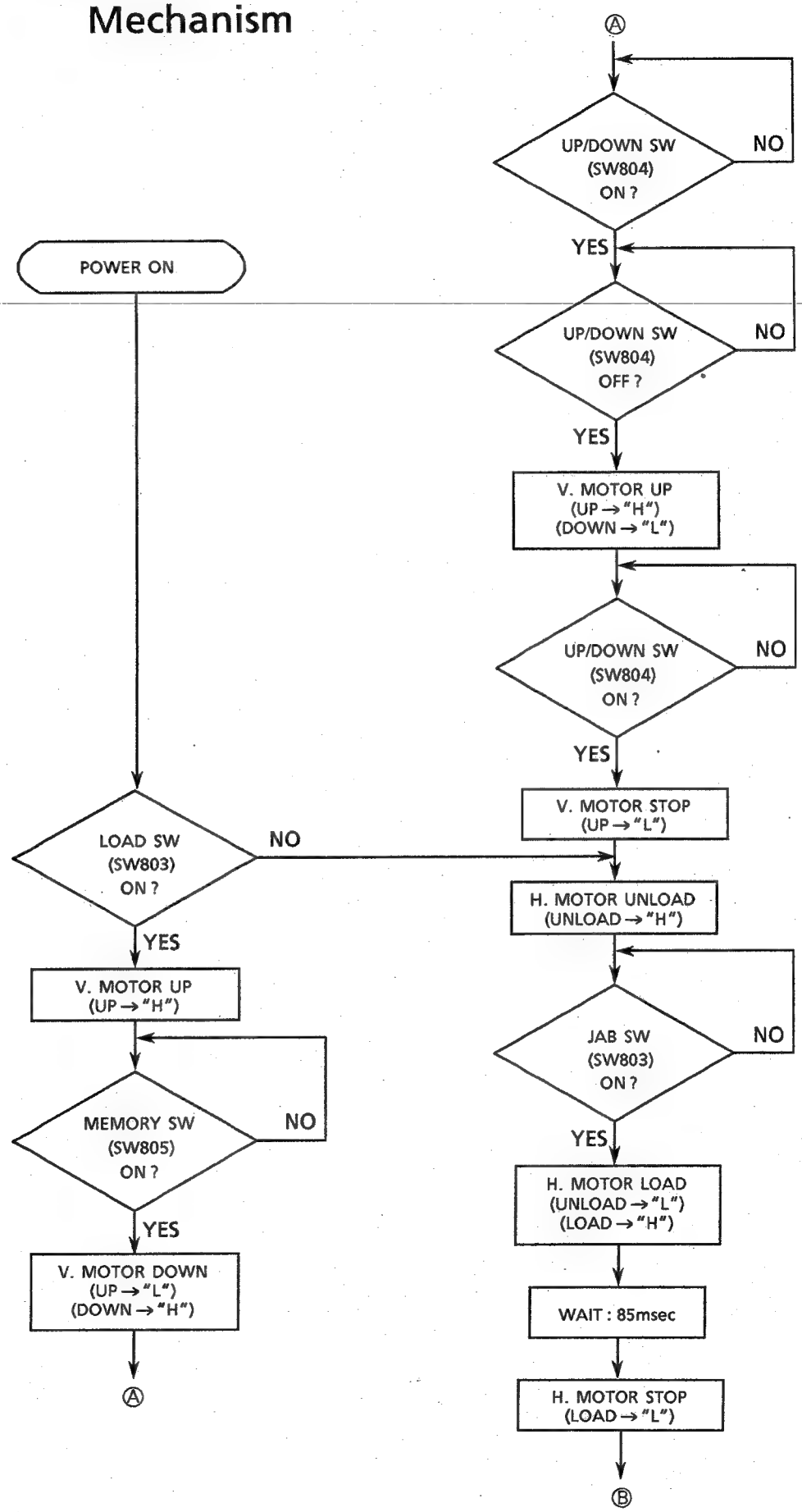
The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

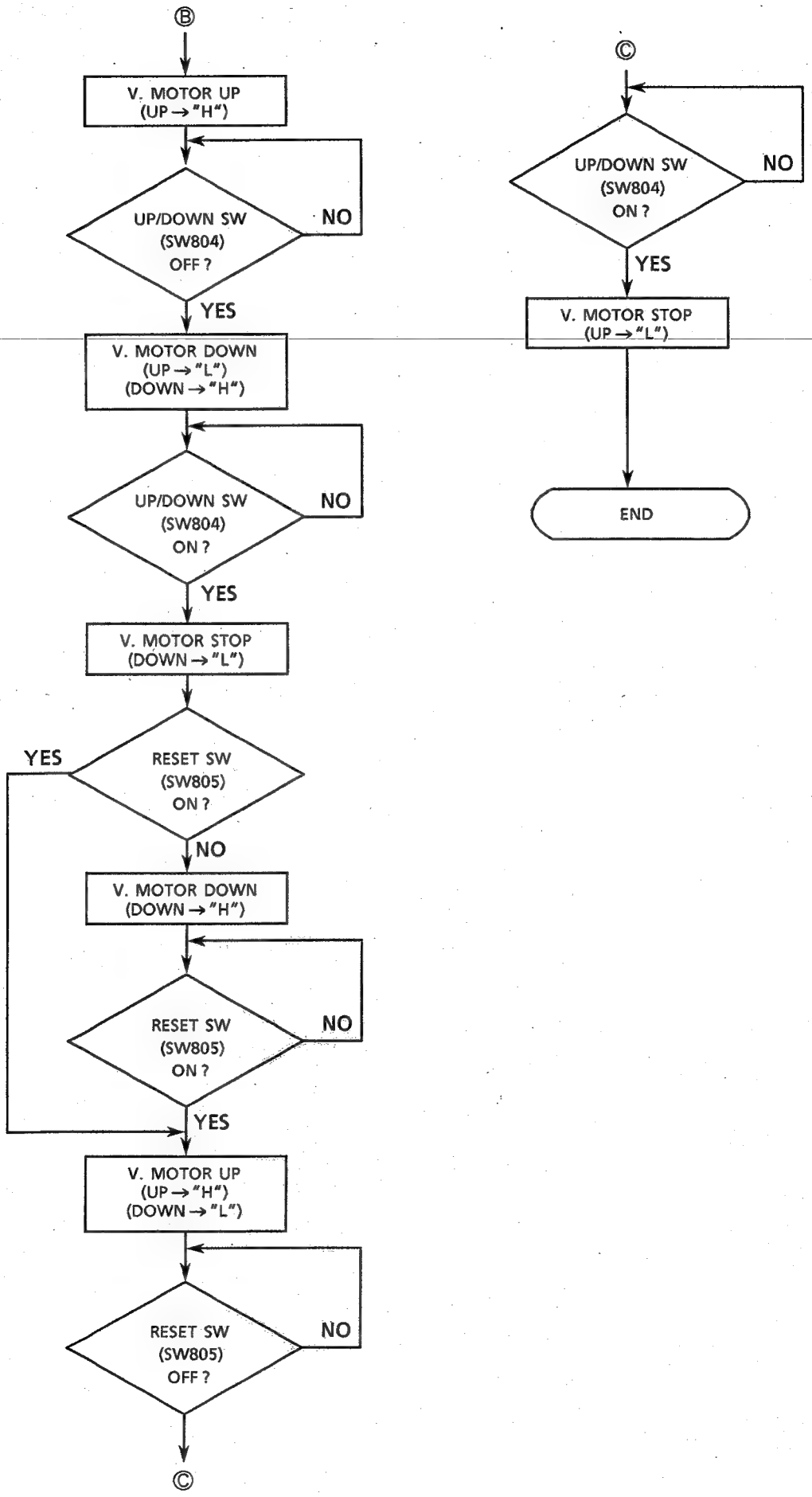
Replacement of Laser Pickup



Note: Since one adjustment may affect other settings, repeat these adjustments a few times.

Initial Operation of Mechanism




Ⓑ
V. MOTOR UP
(UP → "H")
UP/DOWN SW
(SW804)
OFF ?
NO
YES
V. MOTOR DOWN
(UP → "L")
(DOWN → "H")
UP/DOWN SW
(SW804)
ON ?
NO
YES
V. MOTOR STOP
(DOWN → "L")
YES
RESET SW
(SW805)
ON ?
NO
V. MOTOR DOWN
(DOWN → "H")
RESET SW
(SW805)
ON ?
NO
YES
V. MOTOR UP
(UP → "H")
(DOWN → "L")
RESET SW
(SW805)
OFF ?
NO
Ⓒ
Ⓒ
UP/DOWN SW
(SW804)
ON ?
NO
YES
V. MOTOR STOP
(UP → "L")
END

Operation check by each switch.

SW802 : Magazine in switch.
When a magazine is inserted, the switch is turned on.

SW803 : JAB switch.
When drive plate comes toward, the switch is turned on. (The switch is turned on momentarily.)

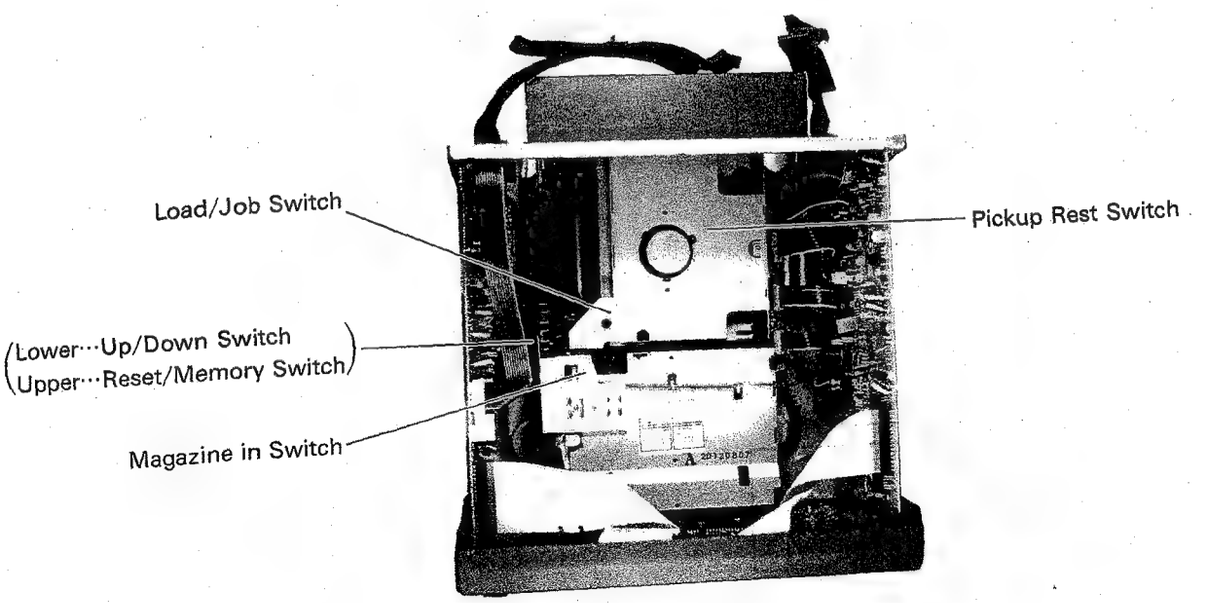
SW803 : Tray load switch.
When the tray of a disc is loaded, the switch is turned on.

SW804 : UP/DOWN switch.
When the mecmanism goes up or down, this sw turns on and off alternately.

SW805 : Reset switch.
When the mechanism comes to the point under the initial position,the switch is turned on.

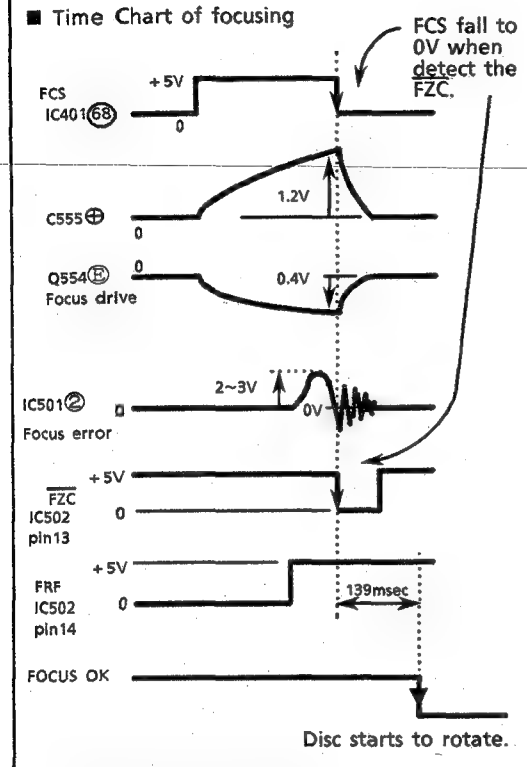
SW805 : Memory switch.
When the power is off in playing a disc, and on again, the switch detect which height the tray should be returned.

SW807 : Pickup rest switch.
When pickup comes to the initial position, the switch is turned on.



Flow of Functional Operation Until TOC is Read

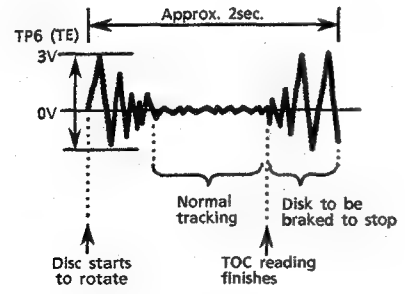
■ Time Chart of focusing



- When the lens moves up and down in a 2-seconds interval, FZC is not output.
- When the lens moves up and down in less than 1-second, FRF is not output or the focus servo loop is abnormal.

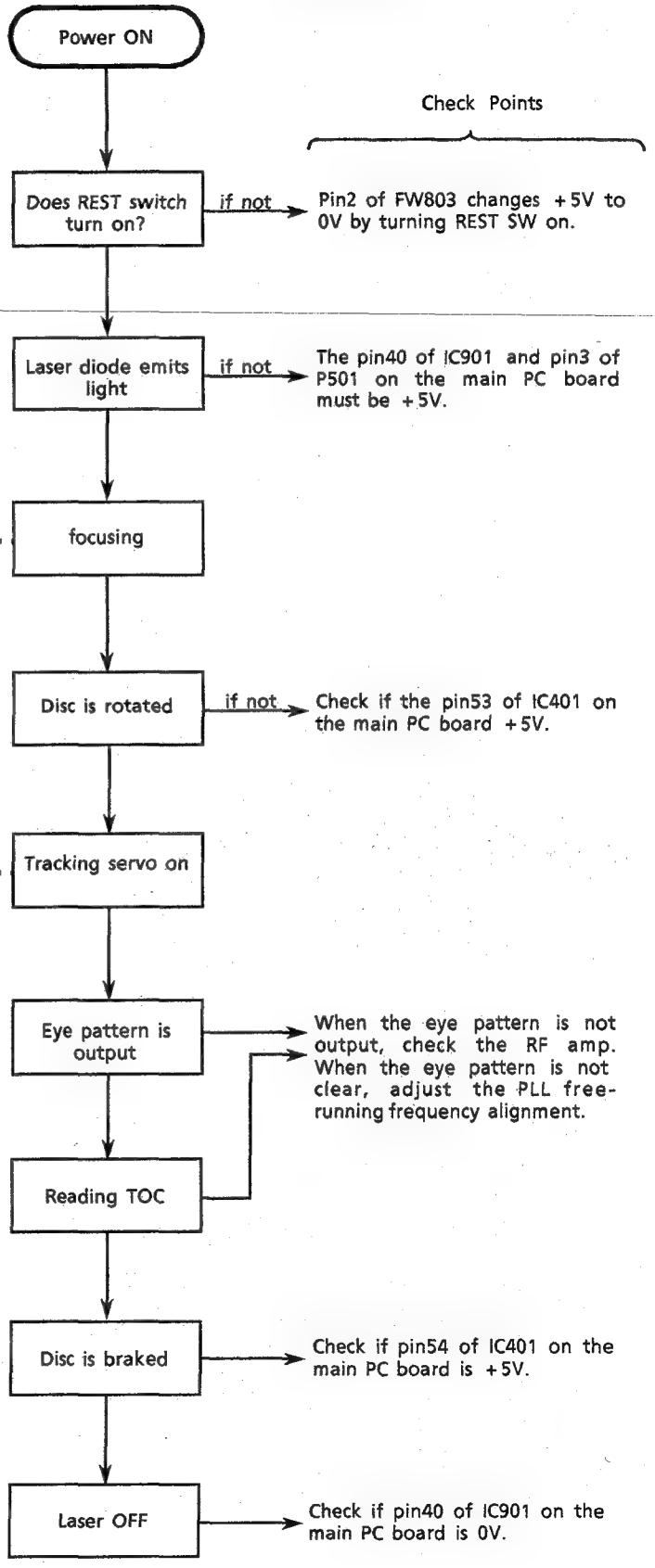
Fig-1

■ Tracking error waveform at TOC reading



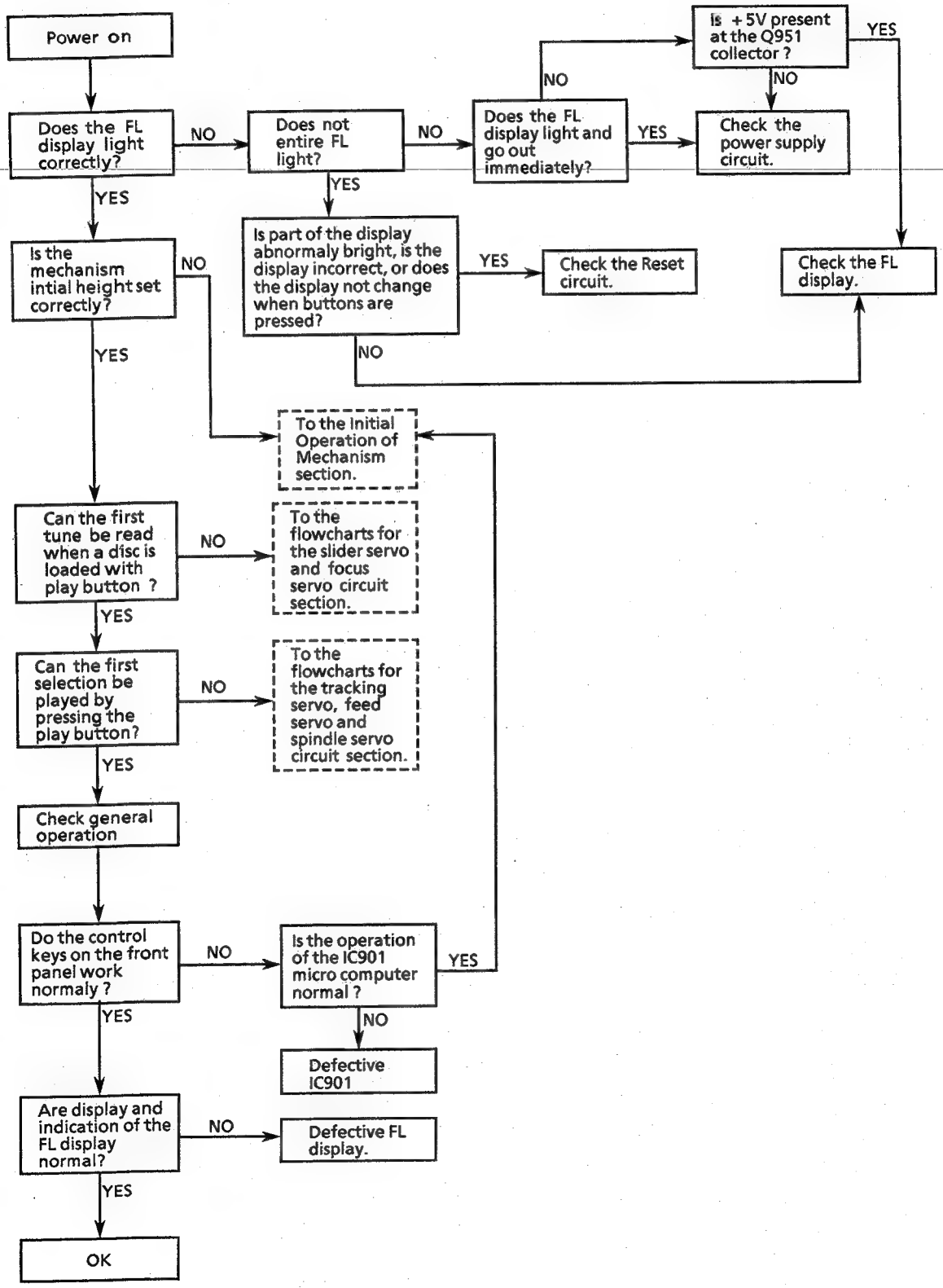
- Check the tracking offset and align it to 0.

Fig-2

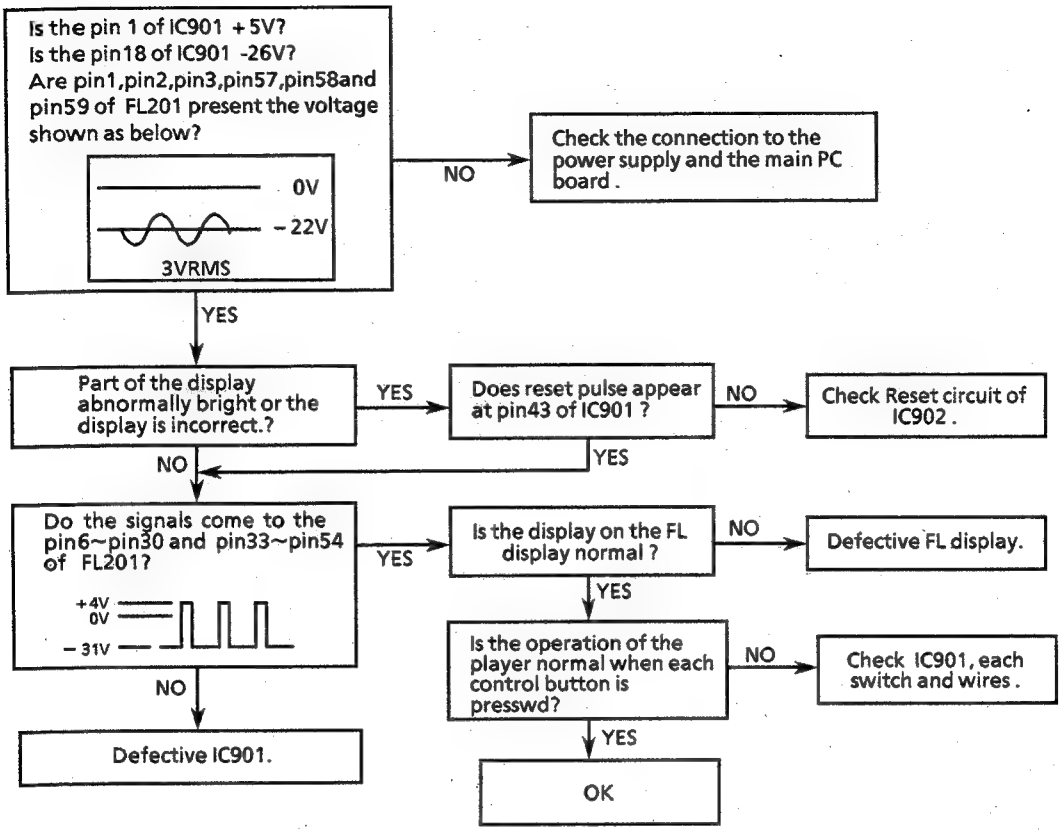


Troubleshooting

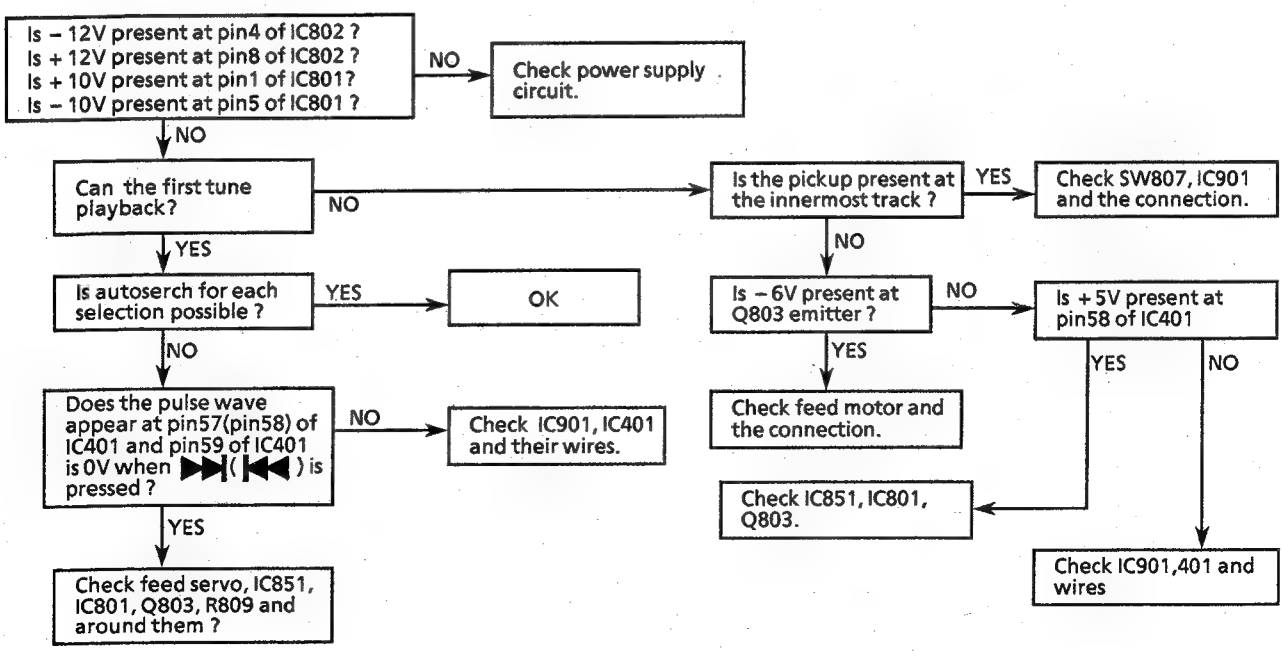
The following flowchart shows each circuit's condition about from "power on" until "ready to play".



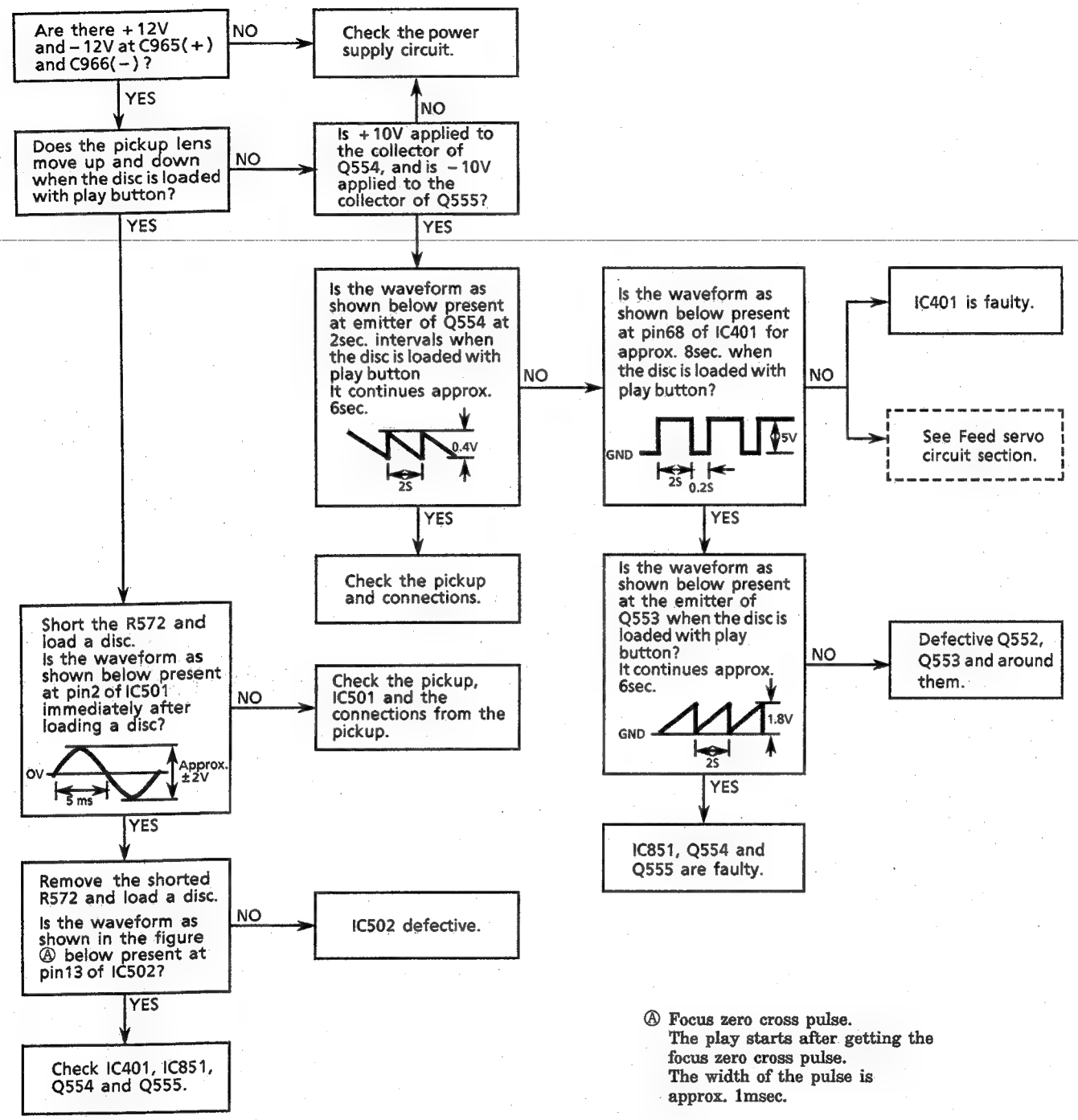
Front circuit Section



Feed servo circuit section

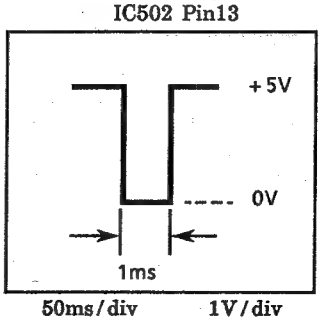


Focus servo circuit section

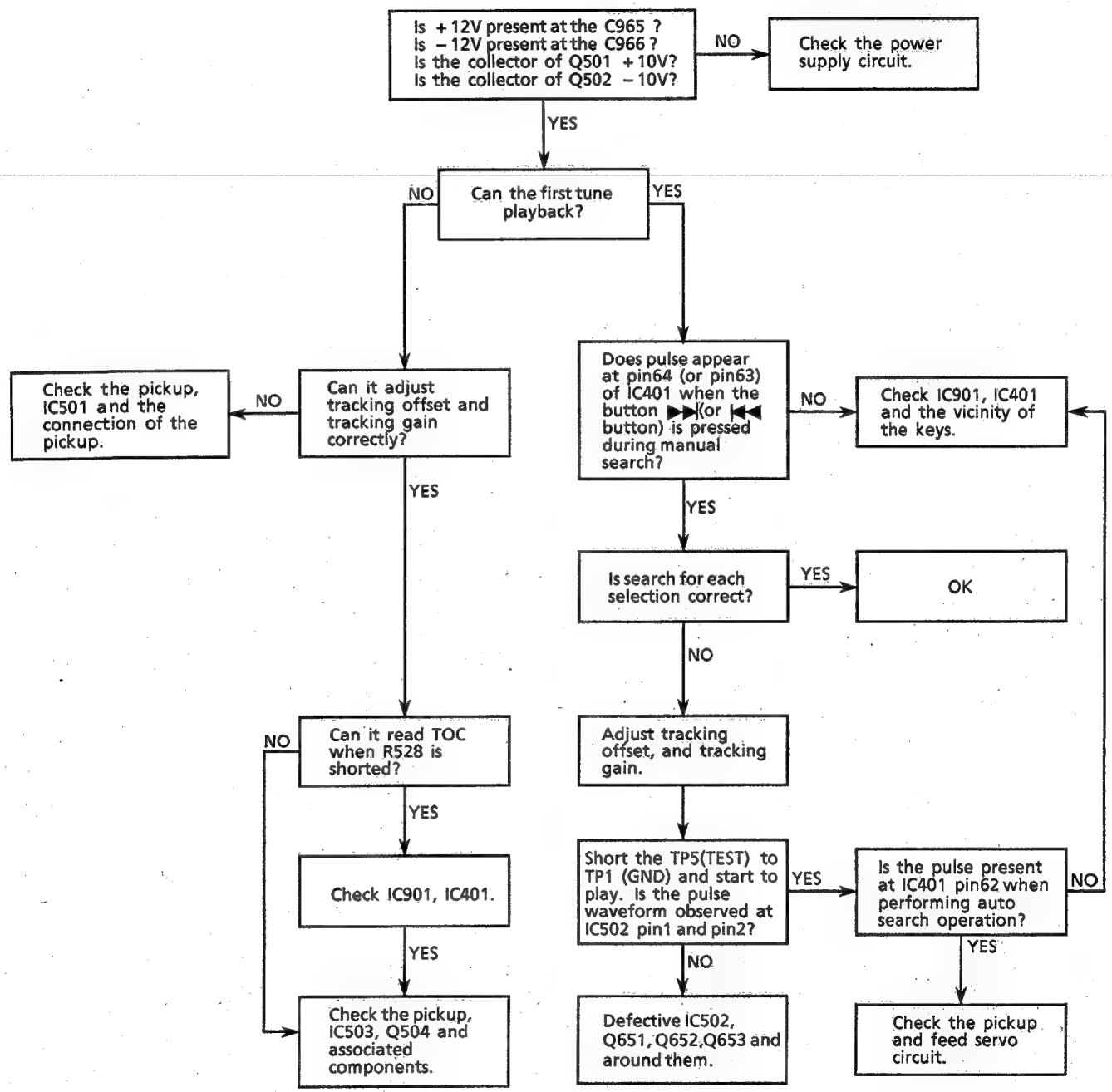


Ⓐ Focus zero cross pulse.
The play starts after getting the focus zero cross pulse.
The width of the pulse is approx. 1msec.

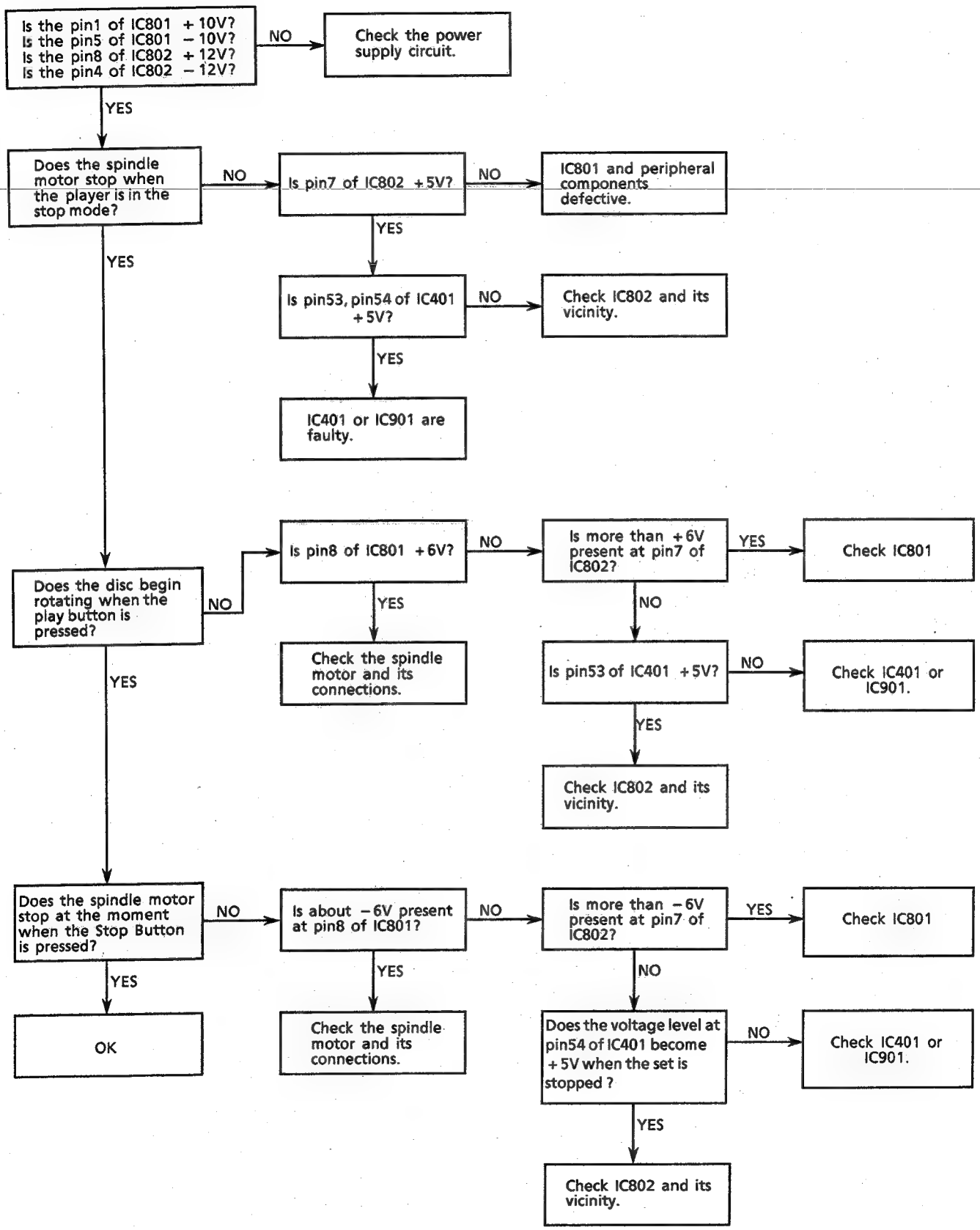
IC502 Pin13



Tracking servo circuit section

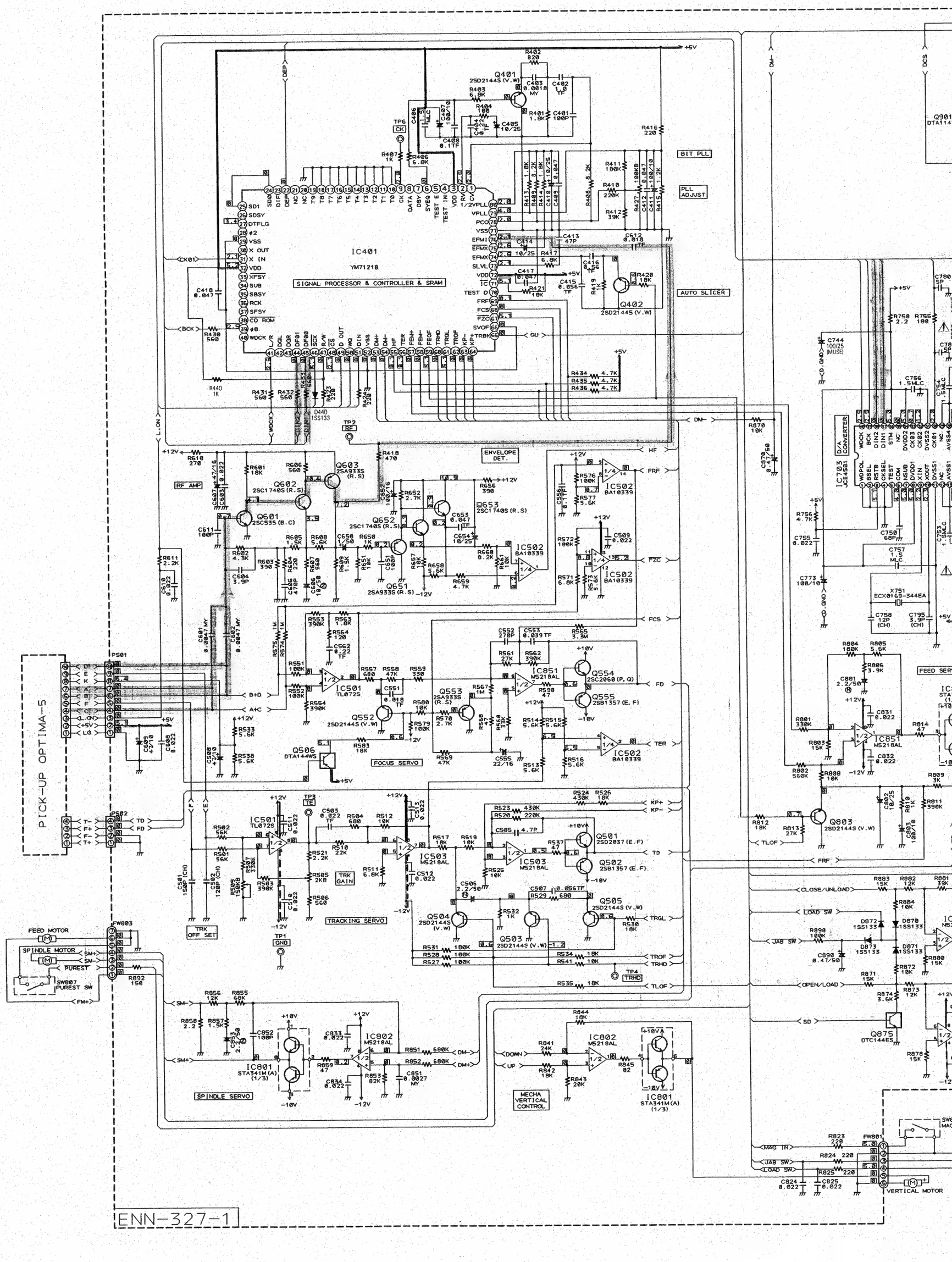


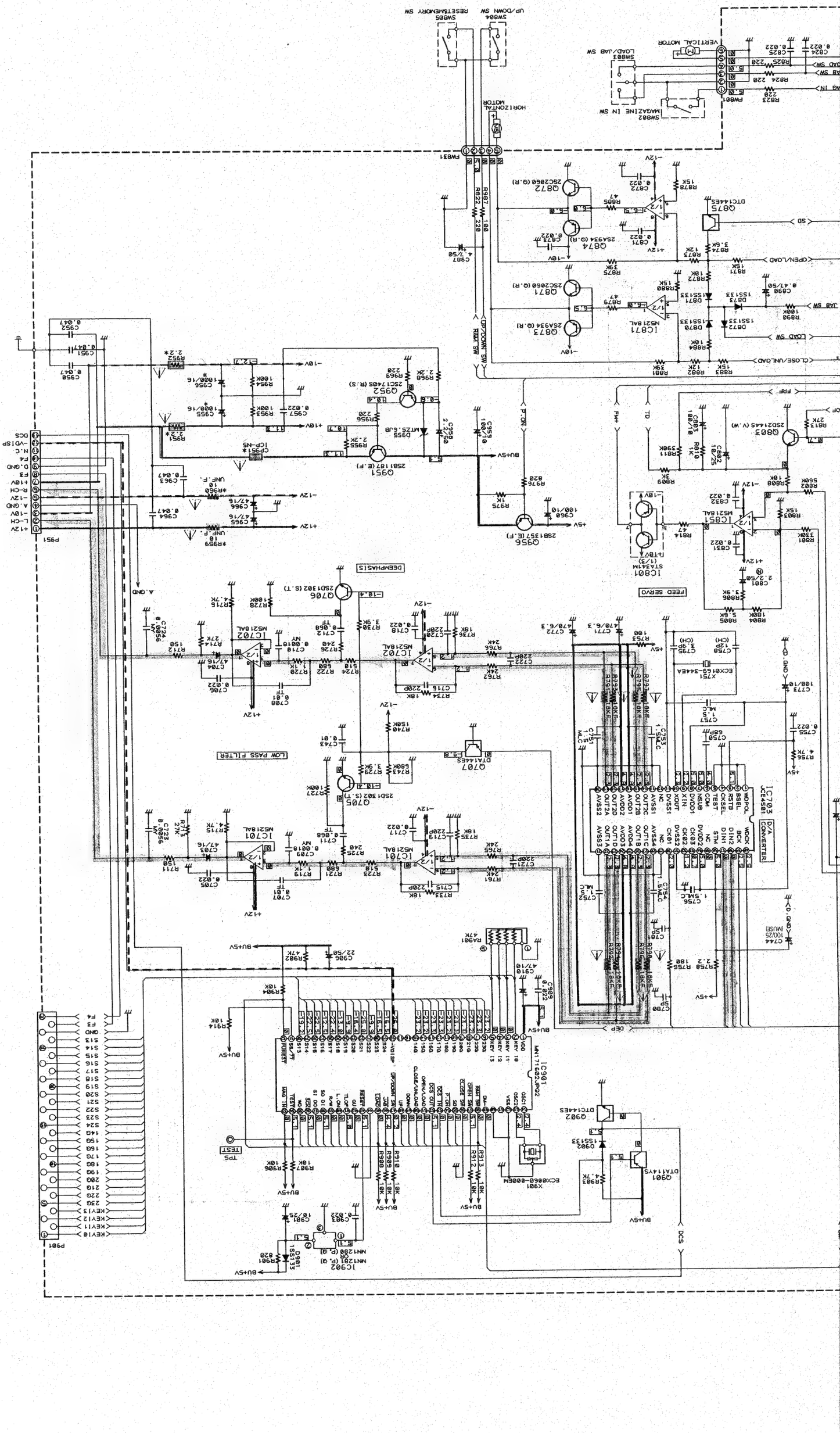
Spindle servo circuit section



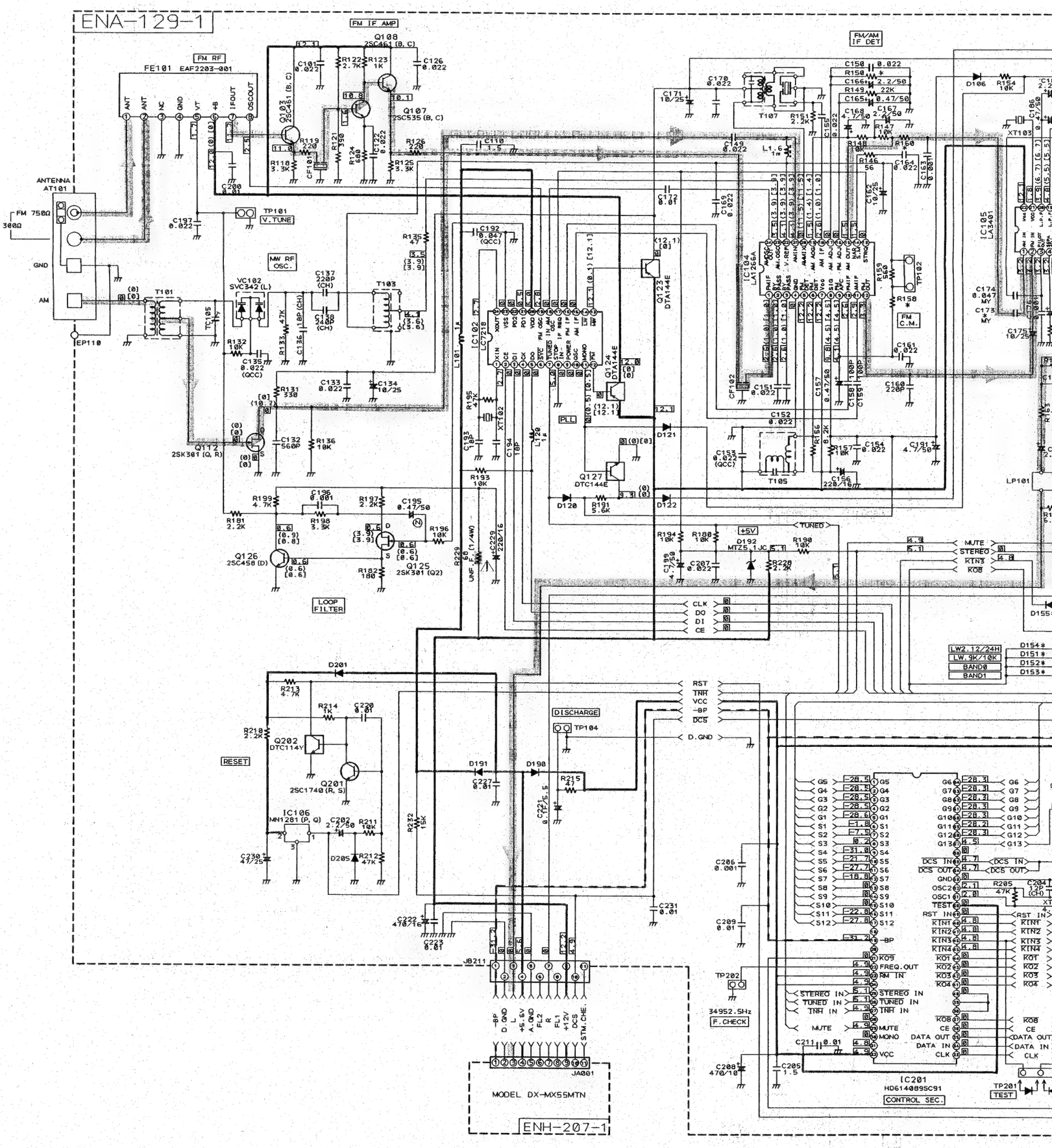
SCHEMATIC DIAGRAM

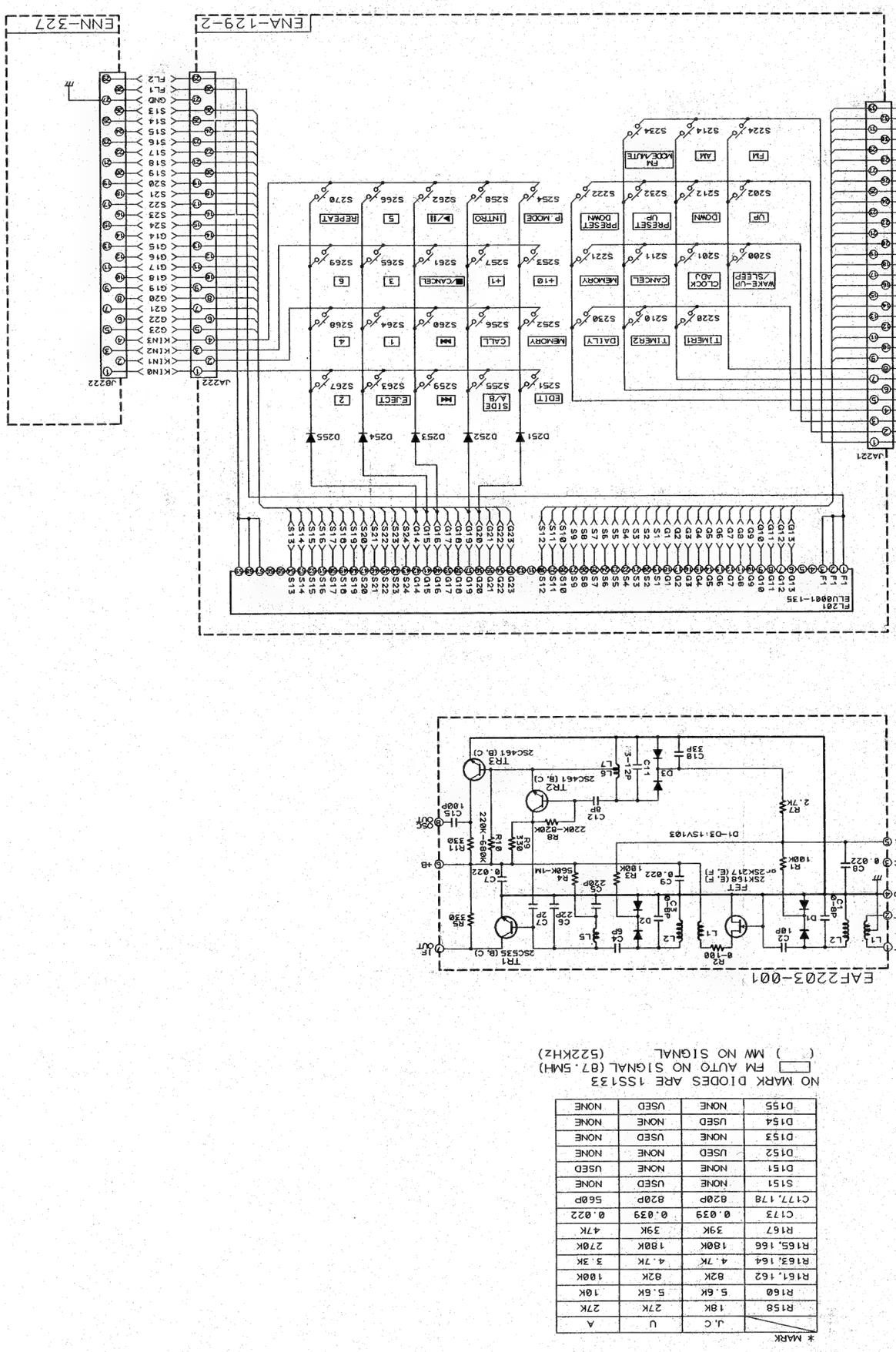
■ CD Section




SW804 UP/DOWN SW
SW805 RESET&MEMORY SW
HORIZONTAL MOTOR
SW803 LOAD/UNLOAD SW
VERTICAL MOTOR
SW802 MAGAZINE IN SW
FW831
FW801
Q872 2SC2060 (Q.R)
Q873 2SA934 (Q.R)
Q874 2SA934 (Q.R)
Q875 DTC144ES
IC871 NJ21 8AL
D870 1SS133
D871 1SS133
D872 1SS133
D873 1SS133
Q871 2SC2060 (Q.R)
OPEN/LOAD
CLOSE/UNLOAD
LOAD SW
UNLOAD SW
R.SW
P.ON
Q951 2SB1187 (E.F)
Q952 2SC1740S (R.S)
Q955 MTZS5.6JB
Q956 2SB1357 (E.F)
P951
D.GND
A.GND
-VDISP
N.C
F4
F3
+12V
R-CH
-12V
A.GND
-10V
L-CH
+12V
DCS
Q803 2SD2144S (V.W)
IC851 NJ21 8AL
IC801 STA341M (1/3)
FEED SERVO
Q706 2SD1302 (S.T)
IC702 NJ21 8AL
IC701 NJ21 8AL
Q707 DTA144ES
Q705 2SD1302 (S.T)
LOW PASS FILTER
DEEMPHASIS
IC703 JCE4581 D/A CONVERTER
EX751 EX0165-344EA
Q902 DTC144ES
Q901 DTA114YS
X901 EX0060-000EM
IC901 MN1571602-JPQ2
IC902 MN1288 (P.Q) MN1288 (G.Q)
D901 1SS133
TP5 TEST
P901
KEY10
KEY11
KEY12
KEY13
2SG
2SH
2SI
2SJ
2SK
1SA
1SB
1SC
1SD
1SE
1SF
1SG
1SH
S24
S23
S22
S21
S20
S19
S18
S17
S16
S15
S14
S13
GND
F3
F4
P.CON
BU+5V
+5V
-10V
+10V
+12V
-12V
DEF
FWF
TD
SD
OPEN/LOAD
CLOSE/UNLOAD
LOAD SW
UNLOAD SW
R.SW
P.CON
DCS
CD.GND
A.GND

■ Tuner Section





* MARK

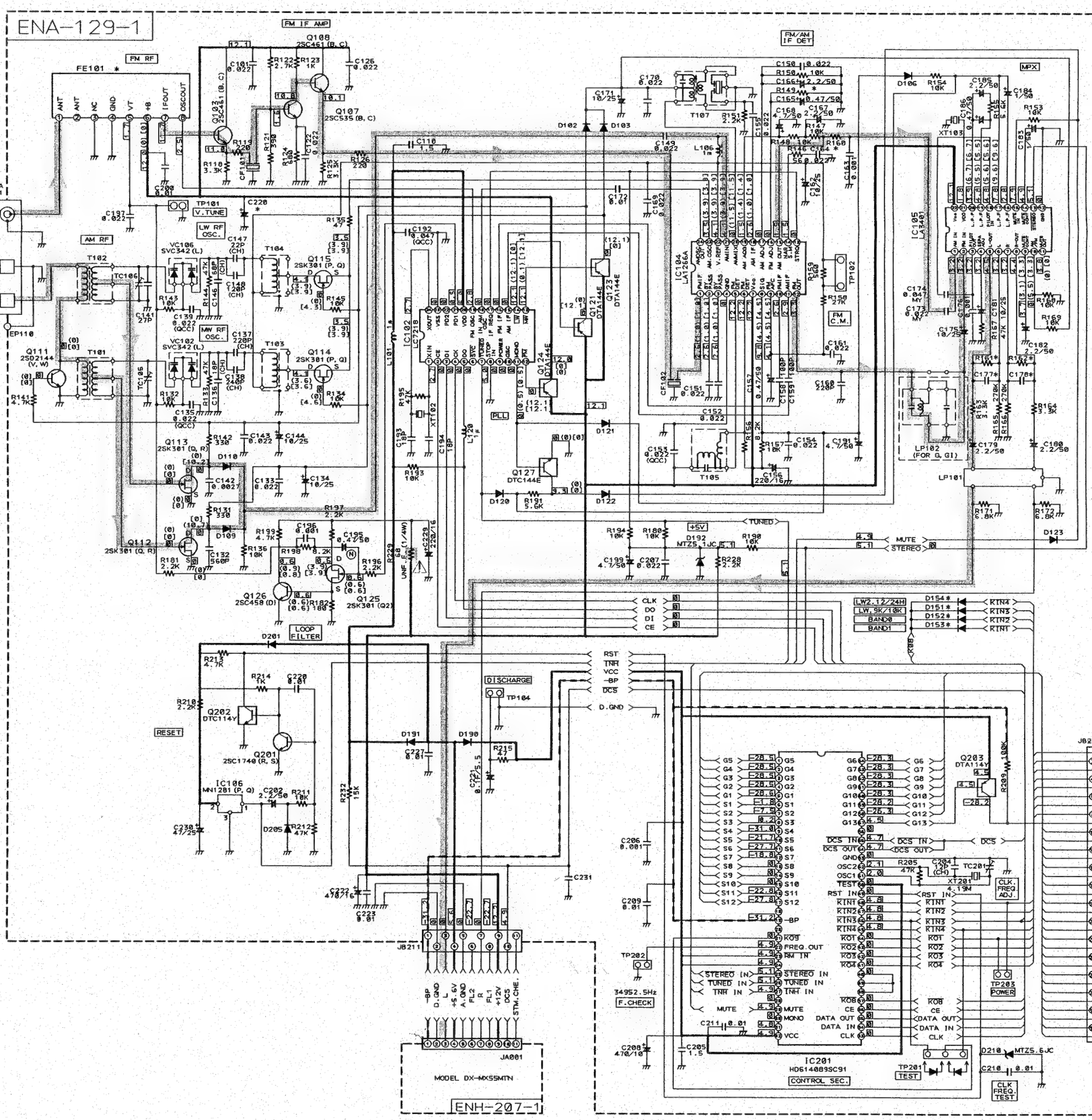
	J, C	U	A
R158	18K	27K	27K
R160	5.6K	5.6K	10K
R161, 162	82K	82K	100K
R163, 164	4.7K	4.7K	3.3K
R165, 166	180K	180K	270K
R167	39K	39K	47K
C173	0.039	0.039	0.022
C177, 178	820P	820P	560P
S151	NONE	USED	NONE
D151	NONE	NONE	USED
D152	USED	NONE	NONE
D153	NONE	USED	NONE
D154	USED	NONE	NONE
D155	NONE	USED	NONE

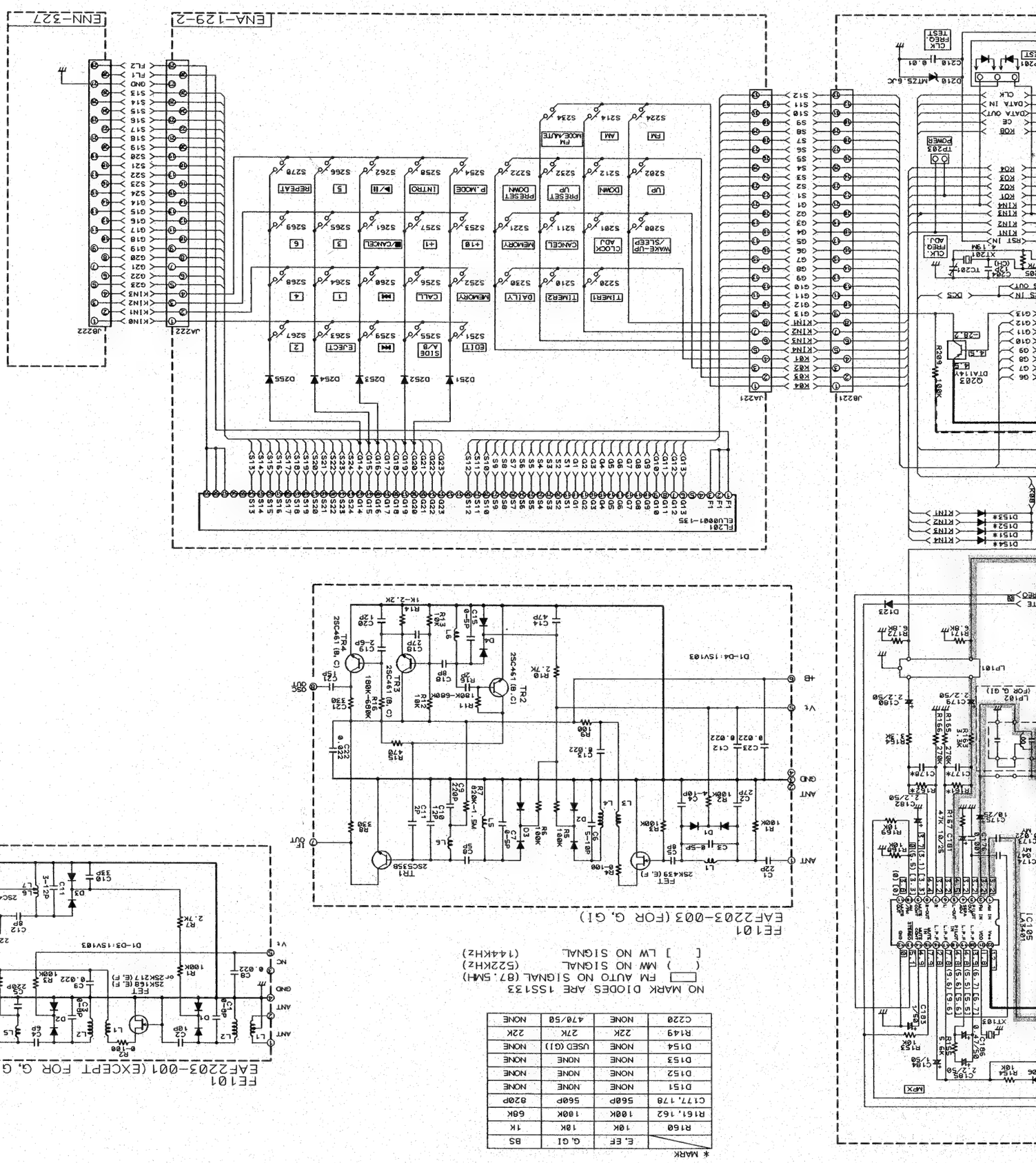
NO MARK DIODES ARE 1SS133

☐ FM AUTO NO SIGNAL (87.5MH)

( ) MW NO SIGNAL (522KHz)

■ Tuner Section

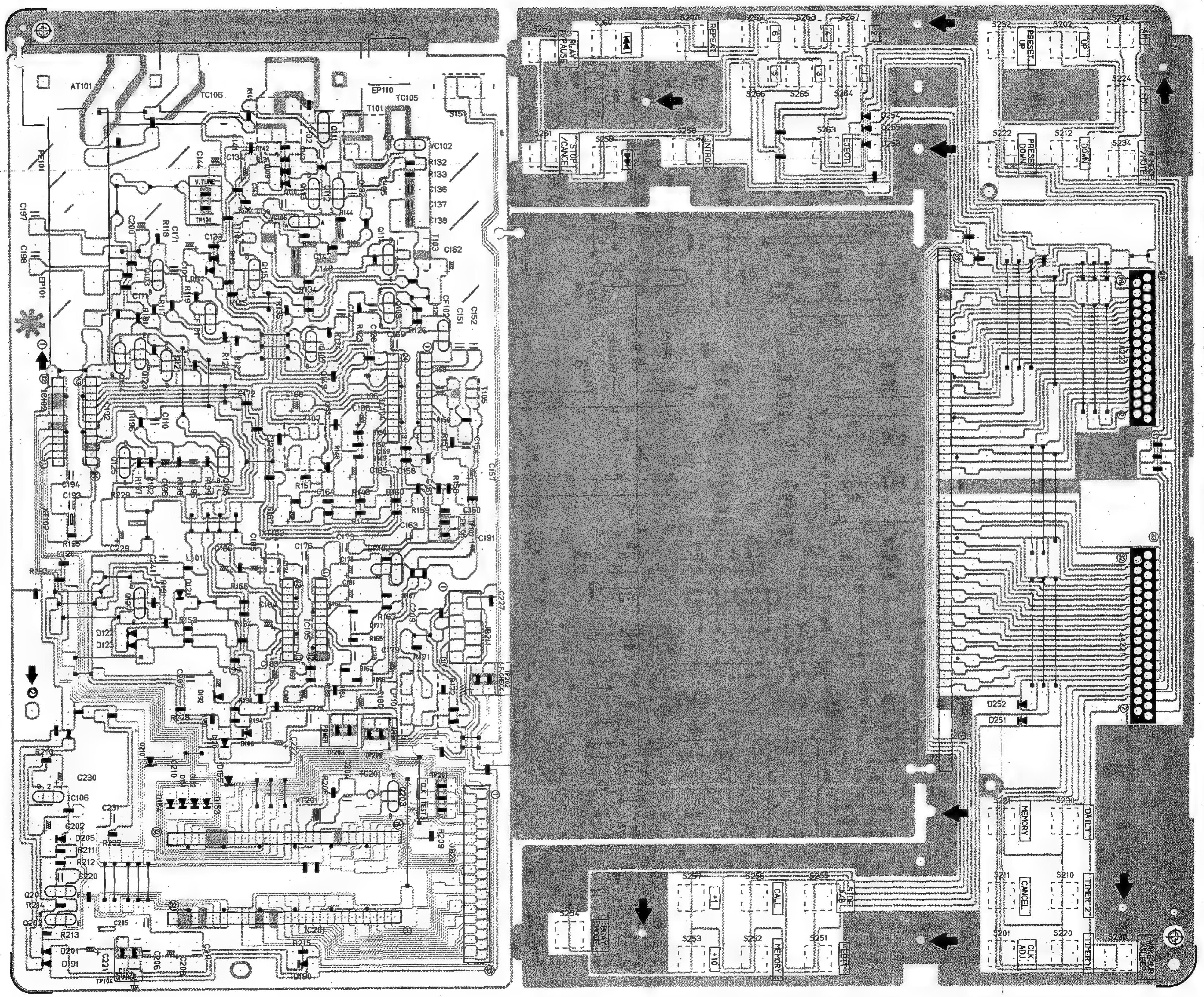




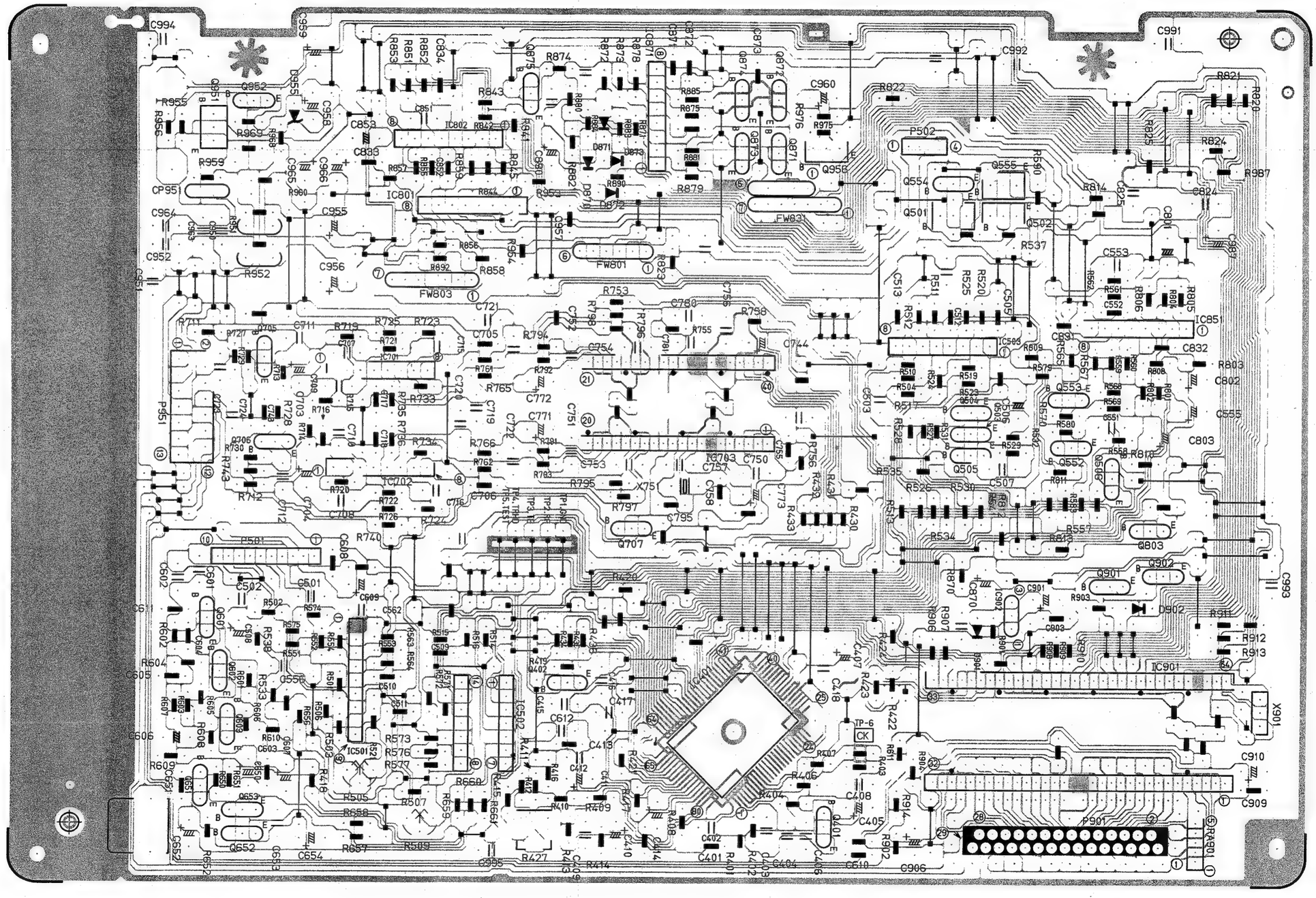
	E, EF	G, GI	BS
R160	10K	10K	1K
R161, 162	100K	100K	68K
C177, 178	560P	560P	820P
D151	NONE	NONE	NONE
D152	NONE	NONE	NONE
D153	NONE	NONE	NONE
D154	NONE	USED (GI)	NONE
R149	22K	27K	22K
C220	NONE	470/50	NONE

Printed Circuit Board

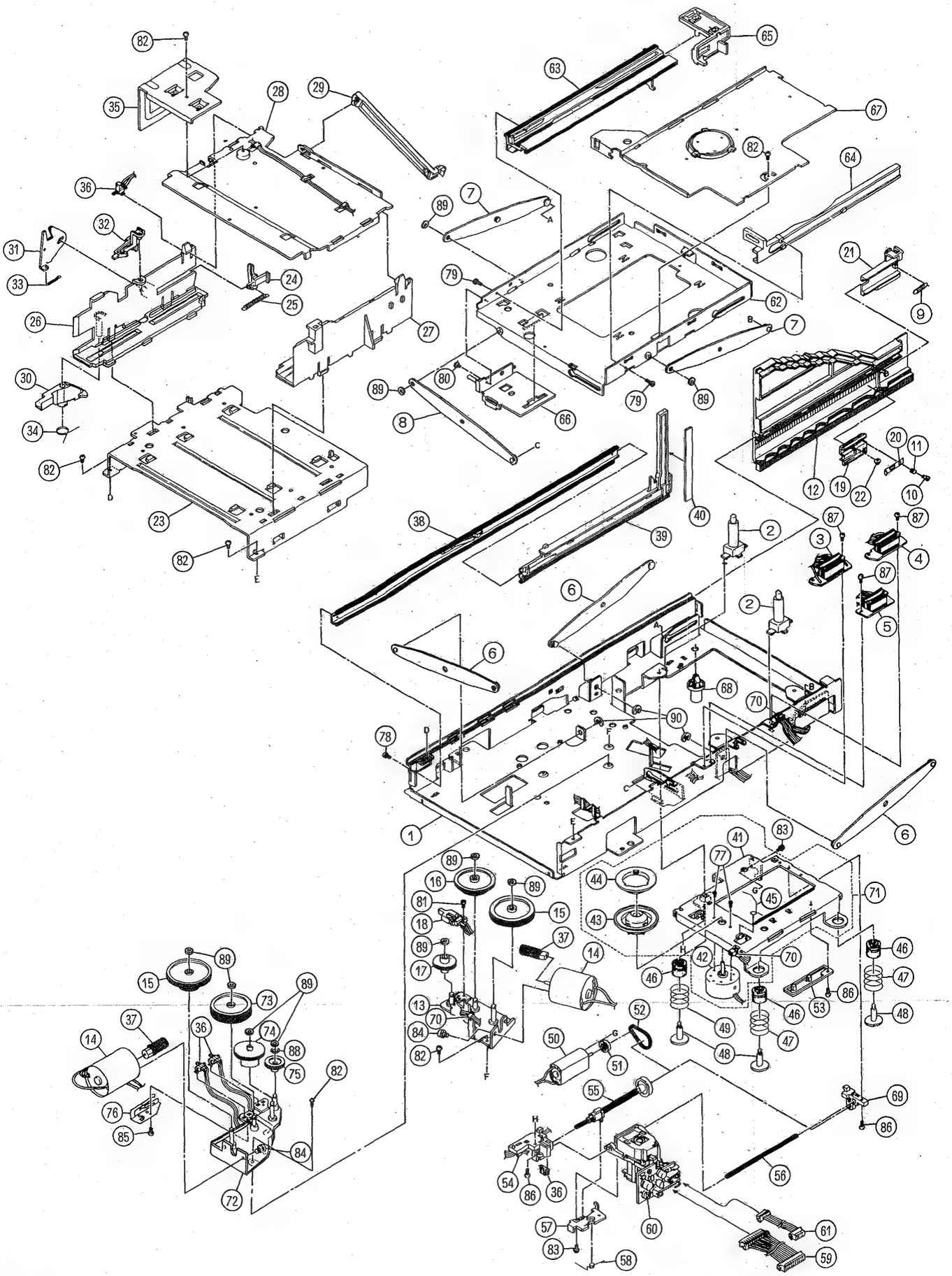
■ Tuner PC Board (ENA-129)



■ CD PC Board (ENN-327)

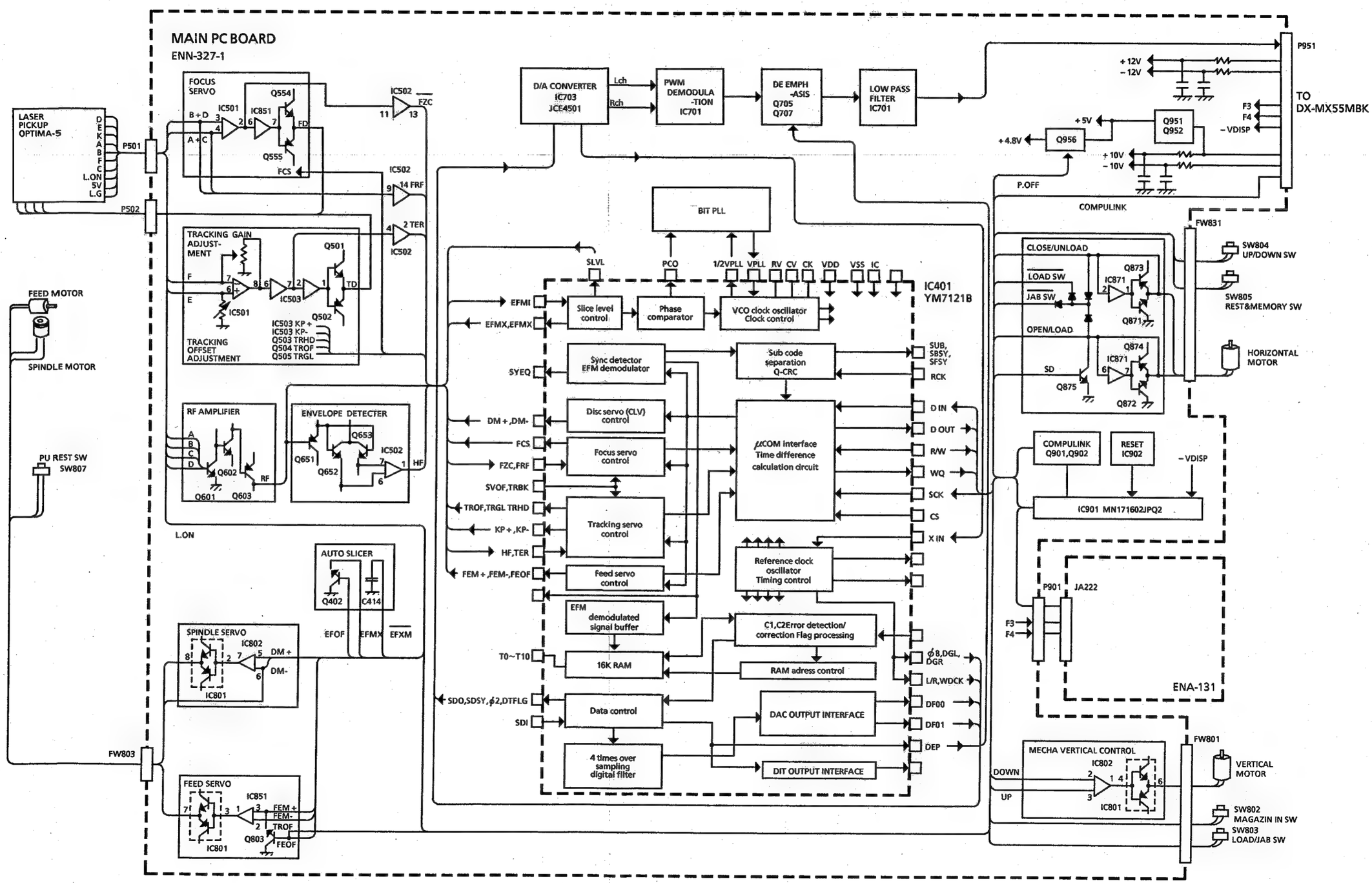


Exploded View of Assemblies and Application points for Grease

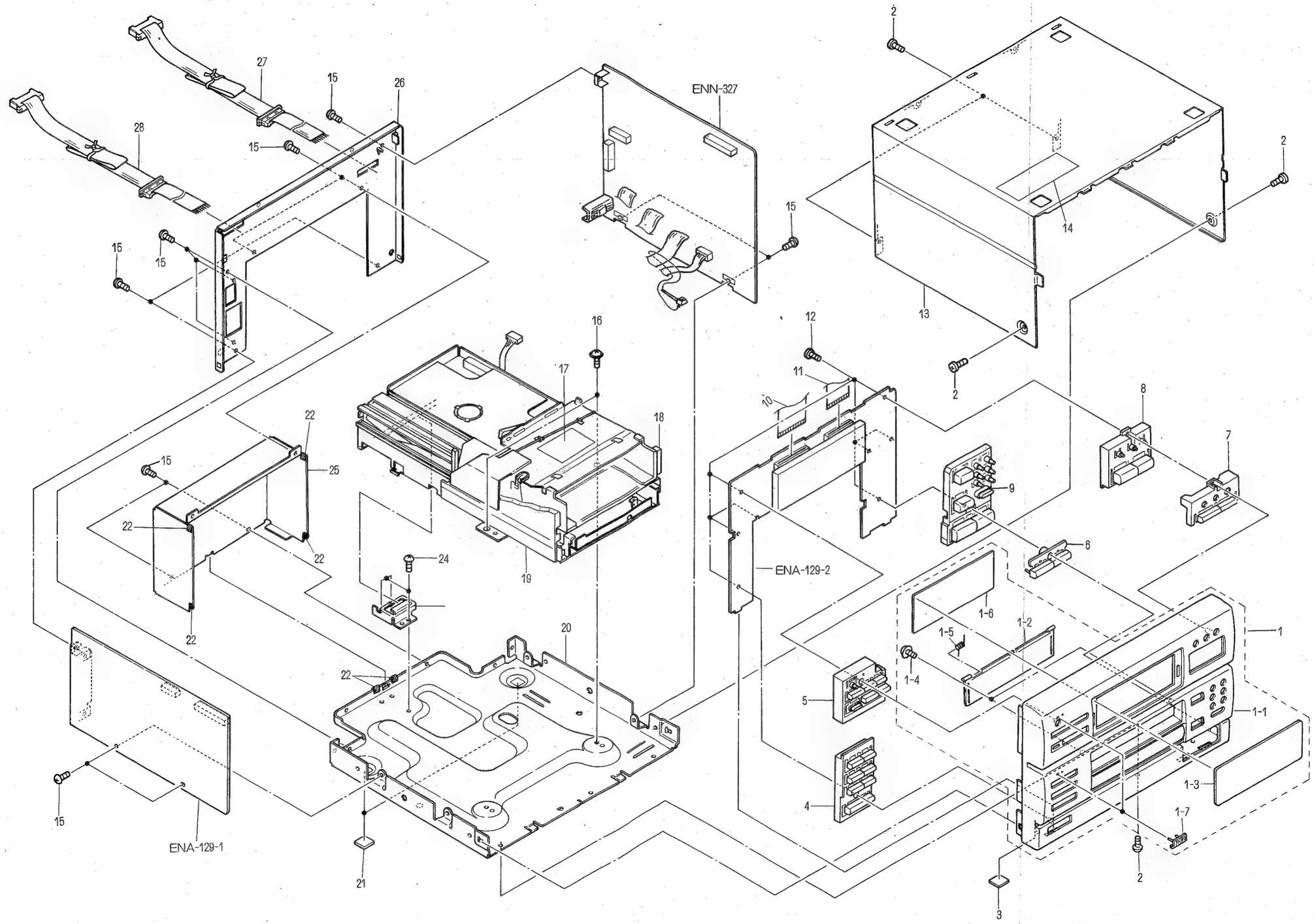


G-425A
G-474C
G-331

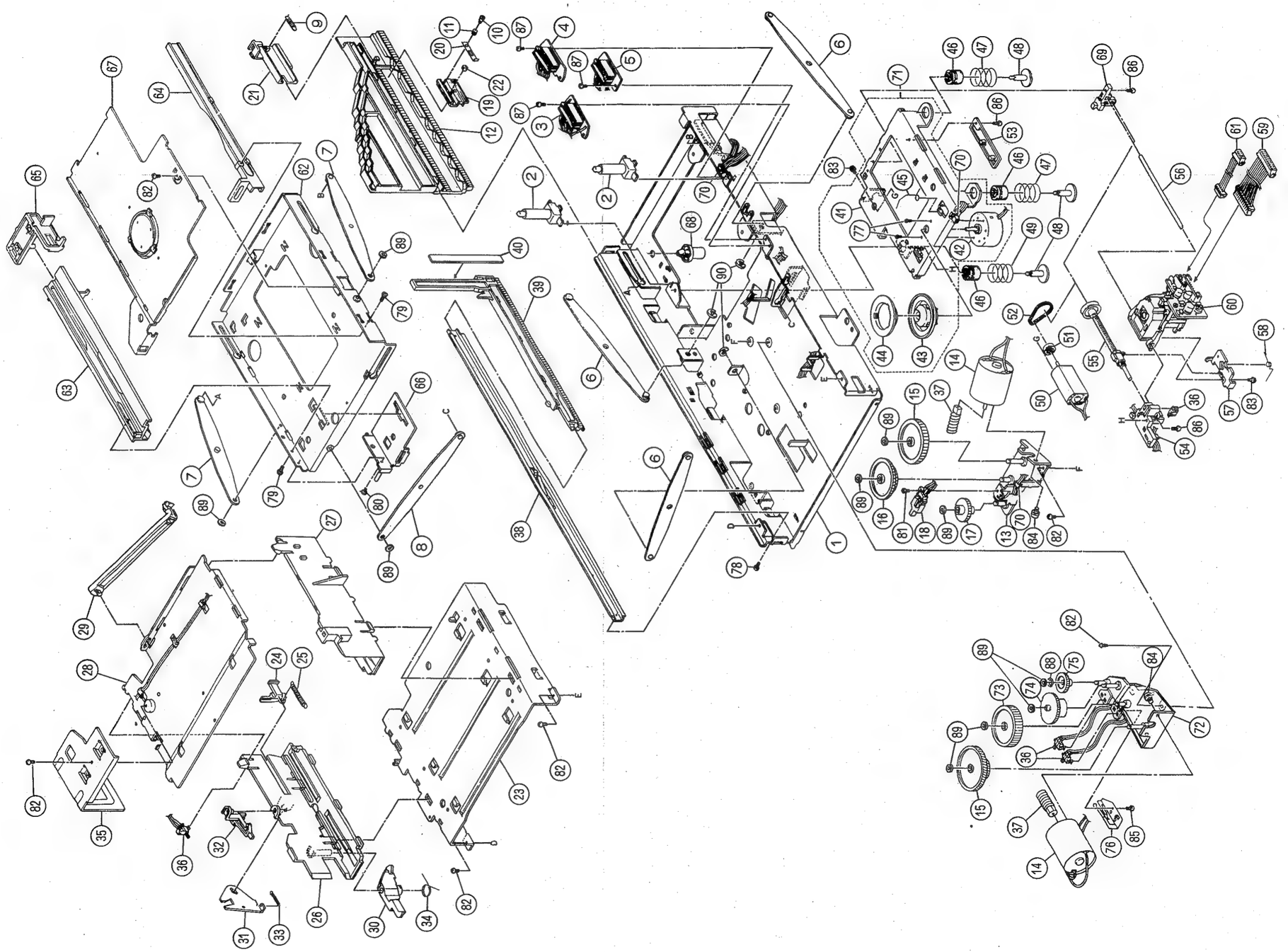
Connection Diagram



■ Exploded View



CD Changer Ass'y and Parts List



PARTS LIST

Contents

General Exploded View and Parts List

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-XTMX55MBKJS	Front Panel Ass'y	1		J
		EFP-XTMX55MBKES	Front Panel Ass'y	1		Except J,C,A,U
		EFP-XTMX55MBJUS	Front Panel Ass'y	1		C,A,U
	1-1	E102557-002	Front Panel	1		J,C,A,U
		E102557-003	Front Panel	1		Except J,C,A,U
	1-2	E307973-002	Lid	1		
	1-3	E307975-001	Tuner Window Screen	1		J
		E307975-002	Tuner Window Screen	1		Except J
	1-4	E72405-001	Special Screw	2		
	1-5	E73534-001	Spring	1		
	1-6	E75130-007	FL Screen	1		J
	1-7	E406971-001	JVC Mark	2		
	2	SDSG3006M	Screw	5		
	3	E406855-006	Spacer	2	Front Foot	
	4	E207411-002	Push Button	1	CD EDIT	
	5	E307987-002	Push Button	1	TIMER	
	6	E207420-002	Push Button	1	CD FF	
	7	E307958-222	Push Button	1	TUNING	
	8	E307925-222	Push Button	1	PRESET	
	9	E207409-002	Push Button	1	CD DISK	
	10	EWR133K-17TT	Flat Wire	1	FC221 (33PIN)	
	11	EWR129K-15TT	Flat Wire	1	FC222 (29PIN)	
	12	SDSF2610Z	Screw	8		
	13	E207399-003	Metal Cover	1		
	14	E67000-018	Caution Label	1		
	15	SBSG3008CC	Screw	14		
	16	GBSG3008Z	Screw	2		
	17	E406507-001	Caution Label	1		Except J
	18	E306805-065	Spacer	1		
	19	————	CD Changer Mechanism Unit Ass'y	1	See page 2-5	
	20	E102564-001	Chassis Base	1		
	21	E406855-007	Spacer	2	Rear Foot	
	22	EXO015008H05S11	Spacer	6		
	23	E307977-001	Bracket	1		
	24	SBST3004CC	Screw	3		
	25	E207413-001	Rear Cover	1		
	26	E207402-003	Rear Panel	1		J
		E207402-004	Rear Panel	1		C,A
		E207402-005	Rear Panel	1		U
		E207402-006	Rear Panel	1		BS
		E207402-007	Rear Panel	1		EN,EF,G,GI,VX
	27	EWP907-010	Flat Wire Ass'y	1	for CD	
	28	EWP907-011	Flat Wire Ass'y	1	for Tuner	
	—	E61029-009	Number Label	1		
	—	E70891-001	Class 1 Label	1		Except J,C

The Marks for Designated Areas

J·····the U.S.A.
C·····Canada
A·····Australia
EN·····Scandinavia
EF·····Continental Europe
G·····Germany
GI·····Italy
BS·····the U.K.
VX·····Eastern Europe
U·····Universal Type
No mark indicates all areas.

⚠ Safety Parts

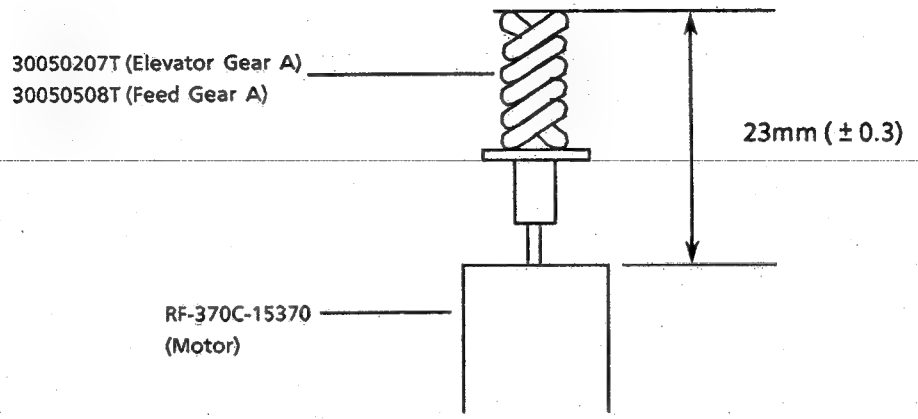
■ Parts List (CD Changer Ass'y)

Item	Part Number	Part Name	Q'ty	Description	Areas
1	30100101T	Chassis Base	1		
2	30050115T	Guide Boss	2		
3	301001302T	Connector PC Board A Ass'y	1		
4	301001301T	Connector PC Board D Ass'y	1		
5	300501304T	Connector PC Board P Ass'y	1		
6	301002502T	Elevator Arm A Ass'y	3		
7	301002503T	Elevator Side Arm B Ass'y	2		
8	301002504T	Elevator Front Arm A Ass'y	1		
9	30100221T	Cam Lever Spring	1		
10	30100222T	Collar Screw	1		
11	30100223T	Cam Spring	1		
12	30100202T	Lift Cam	1		
13	301002501T	Elevator Motor Bracket Ass'y	1		
14	RF-370C-15370	Loading Motor	2		
15	30100210T	Elevator Gear B	2		
16	30100212T	Elevator Gear C	1		
17	30100213T	Elevator Gear D	1		
18	640101167T	Leaf Switch	1		
19	30100204T	Cam Slider	1		
20	30100205T	Cam Spring Plate	1		
21	30100206T	Cam Lever	1		
22	30100207T	Cam Roller	1		
23	30100301T	Guide Base	1		
24	30100311T	Elevator Slide Lever	1		
25	30100312T	Elevator Slide Lever Spring	1		
26	301003703T	Magazine Guide	1	Left	
27	30050303T	Magazine Guide	1	Right	
28	30100305T	Guide Cover	1		
29	30050309T	Tray Stopper	1		
30	30100310T	Open Lever	1		
31	30100308T	Elevator Kick Lever	1		
32	30100307T	Lock Lever	1		
33	30100309T	Elevator Kick Lever Spring	1		
34	30100313T	Open Lever Spring	1		
35	301003706T	Cam Stabilizer	1		
36	64020403T	Push Switch	4		
37	30050508T	Feed Gear A	2		
38	301005501T	Feed Rail Ass'y	1		
39	30100504T	Hook Slide Gear	1		
40	30100505T	Slide Gear Plate	1		
41	30050738T	Turn Table Base	1		
42	60020705T	Spindle Motor	1		
43	30050729T	Turn Table	1		
44	30050713T	Turn Table Plate	1		
45	30050742T	Controller Spring	1		
46	30050721T	Floating Rubber	3		
47	30050715T	Floating Spring (B)	2		
48	30050743T	Floating Screw	3		
49	30050740T	Floating Spring	1		
50	60021102T	Feed Motor	1		
51	30050709T	Motor Pulley	1		
52	30050714T	Feed Motor Belt	1		
53	30050737T	Pick up Support	1		
54	30050724T	Shaft Holder A	1		
55	300507303T	Feed Screw Ass'y	1		
56	30050728T	Pick up Shaft	1		
57	30050735T	Feed Nut Support	1		
58	30050739T	Feed Nut Spring	1		
59	EWS26A-B921	Wire	1	10PIN	
60	OPTIMA-5S	Pick up	1		

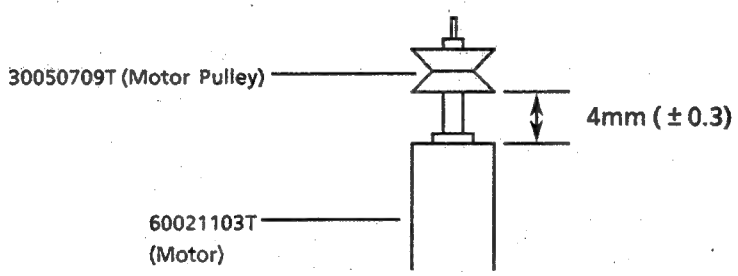
Item	Part Number	Part Name	Q'ty	Description	Areas
61	EWS264-B924	Wire	1	4PIN	
62	301008503T	Rail Base Ass'y	1		
63	30100802T	Rail	1	Left	
64	30100803T	Rail	1	Right	
65	30100804T	Hook Lever	1		
66	301008502T	LP Bracket Ass'y	1		
67	301008302T	Magazine Holder Ass'y	1		
68	30050114T	Chassis Support	1		
69	30050725T	Shaft Holder B	1		
70	12030105T	Tie Band	4		
71	300507305T	Turn Table Base Ass'y	1		
72	301005502T	Feed Motor Bracket Ass'y	1		
73	30100515T	Feed Gear C	1		
74	30100506T	Feed Gear D	1		
75	30100516T	Feed Gear E	1		
76	30100414T	Switch Actuator	1		
77	SPSK1722M	Screw	2		
78	9C0420253T	Screw	1		
79	9C0820601T	Screw	2		
80	9C0420303T	Screw	1		
81	9C0420403T	Screw	1		
82	9P0420031T	Screw	6		
83	LPSP2003Z	Screw	2		
84	9P0230041T	Screw	2		
85	9P1120032T	Screw	1		
86	9P0420051T	Screw	3		
87	9P0420041T	Screw	3		
88	9W0113080T	Washer	1		
89	9W0250110T	Washer	10		
90	REE3000	E. Ring	3		

■ How to install the gears and pulley when servicing.

1. Elevator Motor, Loading Motor



2. Feed Motor

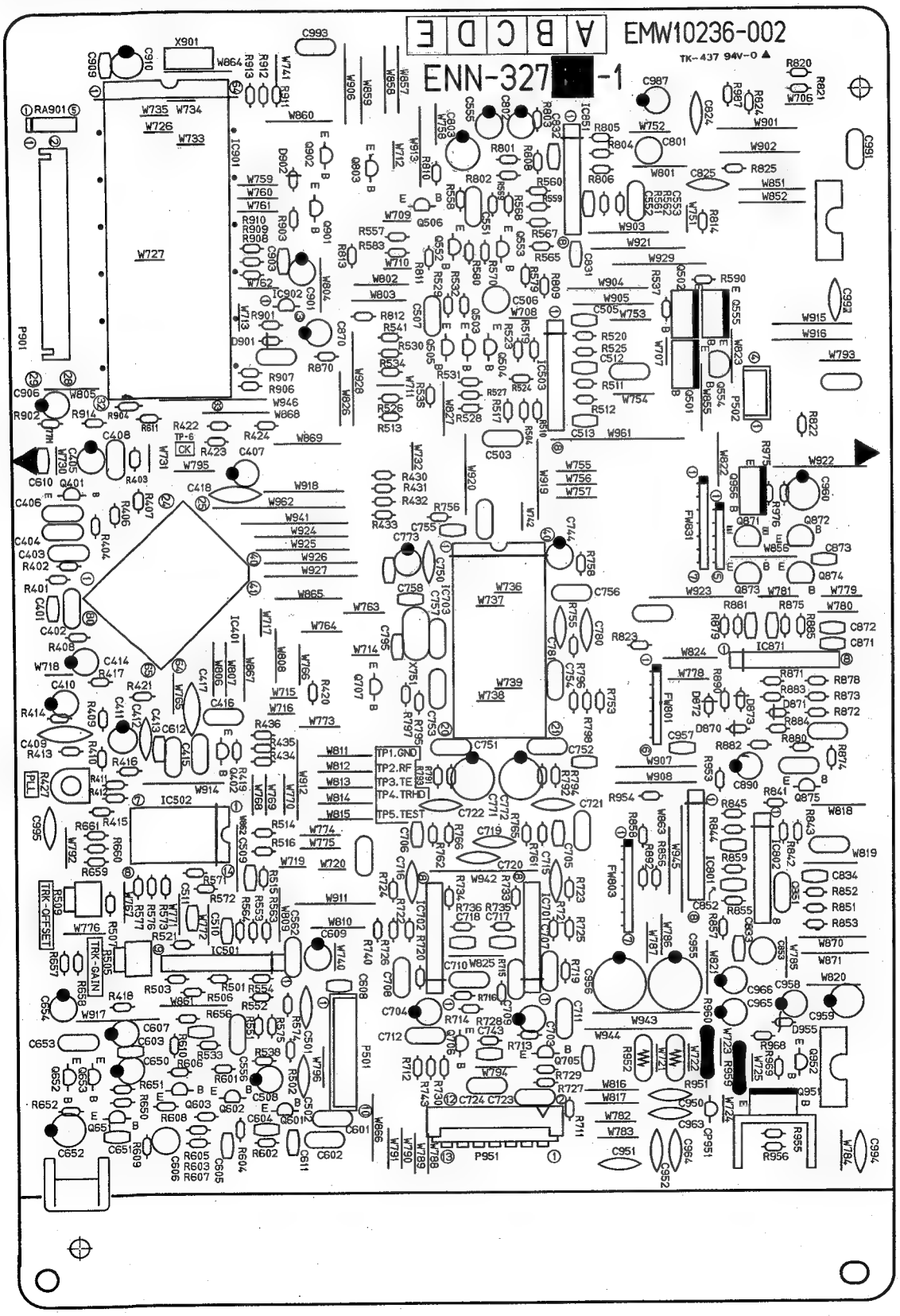


Printed Circuit Board Ass'y and Parts List

■ENN-327☐ CD Main PC Board Ass'y

Note : ENN-327☐ varies according to the areas employed. See note (1) when placing an order.

※ All printed circuit board assemblies are not available as service parts.



Note(1)

PC Board Ass'y	Designated Areas
ENN-327 C	the U.S.A.
ENN-327 D	Canada, Australia, the U.K. Scandinavia Continental Europe Italy, Eastern Europe Universal Type
ENN-327 E	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q401	2SD2144S(VW)	SILICON	ROHM	
	Q402	2SD2144S(VW)	SILICON	ROHM	
	Q501	2SD2037(E,F)	SILICON	ROHM	
	Q502	2SB1357(E,F)	SILICON	ROHM	
	Q503	2SD2144S(VW)	SILICON	ROHM	
	Q504	2SD2144S(VW)	SILICON	ROHM	
	Q505	2SD2144S(VW)	SILICON	ROHM	
	Q506	DTA144WS	SILICON	ROHM	
	Q552	2SD2144S(VW)	SILICON	ROHM	
	Q553	2SA933S(R,S)	SILICON	ROHM	
	Q554	2SC2060(Q,R)	SILICON	ROHM	
	Q555	2SB1357(E,F)	SILICON	ROHM	
	Q601	2SC535(B,C)	SILICON	HITACHI	
	Q602	2SC1740S(R,S)	SILICON	ROHM	
	Q603	2SA933S(R,S)	SILICON	ROHM	
	Q651	2SA933S(R,S)	SILICON	ROHM	
	Q652	2SC1740S(R,S)	SILICON	ROHM	
	Q653	2SC1740S(R,S)	SILICON	ROHM	
	Q705	2SD1302(S,T)	SILICON	MATSUSHITA	
	Q706	2SD1302(S,T)	SILICON	MATSUSHITA	
	Q707	DTA144ES	SILICON	ROHM	
	Q803	2SD2144S(VW)	SILICON	ROHM	
	Q871	2SC2060(Q,R)	SILICON	ROHM	
	Q872	2SC2060(Q,R)	SILICON	ROHM	
	Q873	2SA934(Q,R)	SILICON	ROHM	
	Q874	2SA934(Q,R)	SILICON	ROHM	
	Q875	DTC144ES	SILICON	ROHM	
	Q901	DTA114YS	SILICON	ROHM	
	Q902	DTC144ES	SILICON	ROHM	
	Q951	2SB1187(E,F)	SILICON	ROHM	
	Q952	2SC1740S(R,S)	SILICON	ROHM	
	Q956	2SB1357(E,F)	SILICON	ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	IC401	YM7121B	I.C.	YAMAHA	
	IC501	TL072S	I.C.	DAINICHI	
	IC502	BA10339	I.C.	ROHM	
	IC503	M5218AL	I.C.	MITSUBISHI	
	IC701	M5218AL	I.C.	MITSUBISHI	
	IC702	M5218AL	I.C.	MITSUBISHI	
	IC703	JCE4501	I.C.	MATSUSHITA	
	IC801	STA341M(A)	I.C.	SANKEN	
	IC802	M5218AL	I.C.	MITSUBISHI	
	IC851	M5218AL	I.C.	MITSUBISHI	
	IC871	M5218AL	I.C.	MITSUBISHI	
	IC901	MN171602JPQ2	I.C.	MATSUSHITA	
	IC902	MN1281(P,Q)	I.C.	MATSUSHITA	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D440	1SS133	SILICON	ROHM	
	D870	1SS133	SILICON	ROHM	
	D871	1SS133	SILICON	ROHM	
	D872	1SS133	SILICON	ROHM	
	D873	1SS133	SILICON	ROHM	
	D901	1SS133	SILICON	ROHM	
	D902	1SS133	SILICON	ROHM	
	D955	MTZ5.6JB	ZENER	ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C401	QCBB1HK-101	100PF	50V	CERAMIC	
	C402	QFV81HJ-105	1MF	50V	T.FILM	
	C403	QFN81HJ-182	1800PF	50V	MYLAR	
	C404	QFV81HJ-224	0.22MF	50V	T.FILM	
	C405	QETB1EM-106	10MF	25V	ELECTRO	
	C406	QCZ0205-155	1.5MF	25V	CERAMIC	
	C407	QETB1AM-107	100MF	10V	ELECTRO	
	C408	QFV81HJ-104	0.1MF	50V	T.FILM	
	C409	QCF21HP-473	0.047MF	50V	CERAMIC	
	C410	QETB1EM-106	10MF	25V	ELECTRO	
	C411	QETB1AM-107	100MF	10V	ELECTRO	
	C412	QCC21EM-473	0.047MF	25V	CERAMIC	
	C413	QCSB1HJ-470	47PF	50V	CERAMIC	
	C414	QETB1EM-106	10MF	25V	ELECTRO	
	C415	QFV81HJ-563	0.056MF	50V	T.FILM	
	C416	QFV81HJ-564	0.56MF	50V	T.FILM	
	C417	QCC21EM-473	0.047MF	25V	CERAMIC	
	C418	QCF21HP-473	0.047MF	50V	CERAMIC	
	C501	QCT26CH-151	150PF	50V	CERAMIC	
	C502	QCT26CH-121	120PF	50V	CERAMIC	
	C503	QFV81HJ-223	0.022MF	50V	T.FILM	
	C505	QCSB1HK-4R7	4.7PF	50V	CERAMIC	
	C506	QEN51HM-225	2.2MF	50V	NON POLE	
	C507	QFV81HJ-563	0.056MF	50V	T.FILM	
	C508	QETB1AM-476	47MF	10V	ELECTRO	
	C509	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C510	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C511	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C512	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C513	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C551	QFV81HJ-183	0.018MF	50V	T.FILM	
	C552	QCBB1HK-271	270PF	50V	CERAMIC	
	C553	QFV81HJ-393	0.039MF	50V	T.FILM	
	C555	QETB1CM-226	22MF	16V	ELECTRO	
	C556	QFV81HJ-104	0.1MF	50V	T.FILM	
	C562	QFV81HJ-224	0.22MF	50V	T.FILM	
	C601	QFN81HJ-472	4700PF	50V	MYLAR	
	C602	QFN81HJ-472	4700PF	50V	MYLAR	
	C603	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C604	QCSB1HK-3R9	3.9PF	50V	CERAMIC	
	C605	QCBB1HK-471	470PF	50V	CERAMIC	
	C606	QEN51HM-106	10MF	50V	NON POLE	
	C607	QETB1CM-476	47MF	16V	ELECTRO	
	C608	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C609	QETB1AM-476	47MF	10V	ELECTRO	
	C610	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C611	QCBB1HK-101	100PF	50V	CERAMIC	
	C612	QFV81HJ-183	0.018MF	50V	T.FILM	
	C650	QETB1HM-105	1MF	50V	ELECTRO	
	C651	QCBB1HK-101	100PF	50V	CERAMIC	
	C652	QETB1CM-107	100MF	16V	ELECTRO	
	C653	QFV81HJ-473	0.047MF	50V	T.FILM	
	C654	QETB1EM-106	10MF	25V	ELECTRO	
	C703	QETB1CM-476	47MF	16V	ELECTRO	
	C704	QETB1CM-476	47MF	16V	ELECTRO	
	C705	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C706	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C707	QFV81HJ-103	0.01MF	50V	T.FILM	
	C708	QFV81HJ-103	0.01MF	50V	T.FILM	
	C709	QFN81HJ-182	1800PF	50V	MYLAR	
	C710	QFN81HJ-182	1800PF	50V	MYLAR	
	C711	QFV81HJ-683	0.068MF	50V	T.FILM	
	C712	QFV81HJ-683	0.068MF	50V	T.FILM	
	C715	QCS21HJ-221	220PF	50V	CERAMIC	
	C716	QCS21HJ-221	220PF	50V	CERAMIC	
	C717	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C718	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C719	QCS21HJ-221	220PF	50V	CERAMIC	
	C720	QCS21HJ-221	220PF	50V	CERAMIC	
	C721	QCS21HJ-221	220PF	50V	CERAMIC	
	C722	QCS21HJ-221	220PF	50V	CERAMIC	
	C723	QFN81HJ-562	5600PF	50V	MYLAR	
	C724	QFN81HJ-562	5600PF	50V	MYLAR	
	C743	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C744	EEZ2505-107	100MF	10V	ELECTRO	
	C750	QCS21HJ-680	68PF	50V	CERAMIC	
	C751	QCZ0205-155	1.5MF	25V	CERAMIC	
	C752	QCZ0205-155	1.5MF	25V	CERAMIC	
	C753	QCZ0205-155	1.5MF	25V	CERAMIC	
	C754	QCZ0205-155	1.5MF	25V	CERAMIC	
	C755	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C756	QCZ0205-155	1.5MF	25V	CERAMIC	
	C757	QCZ0205-155	1.5MF	25V	CERAMIC	
	C758	QCT30CH-120	12PF	50V	CERAMIC	
	C771	QETB0JM-477	470MF	6.3V	ELECTRO	
	C772	QETB0JM-477	470MF	6.3V	ELECTRO	
	C773	QETB1AM-107	100MF	10V	ELECTRO	
	C780	QCS21HJ-5R0	5PF	50V	CERAMIC	
	C781	QCS21HJ-5R0	5PF	50V	CERAMIC	
	C795	QCT30CH-3R9	3.9PF	50V	CERAMIC	
	C801	QEN51HM-225	2.2MF	50V	NON POLE	
	C802	QETB1EM-106	10MF	25V	ELECTRO	
	C803	QETB1AM-107	100MF	10V	ELECTRO	
	C824	QCF21HP-223	0.022MF	50V	CERAMIC	
	C825	QCF21HP-223	0.022MF	50V	CERAMIC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C831	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C832	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C833	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C834	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C851	QFN81HJ-272	2700PF 50V MYLAR	
	C852	QCBB1HK-101	100PF 50V CERAMIC	
	C853	QEN51HM-225	2.2MF 50V NON POLE	
	C870	QETB1HM-474	0.47MF 50V ELECTRO	
	C871	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C872	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C873	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C890	QETB1HM-474	0.47MF 50V ELECTRO	
	C901	QETB1EM-106	10MF 25V ELECTRO	
	C903	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C906	QETB1HM-226	22MF 50V ELECTRO	
	C909	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C910	QETB1AM-476	47MF 10V ELECTRO	
	C950	QCC21EM-473	0.047MF 25V CERAMIC	
	C951	QCC21EM-473	0.047MF 25V CERAMIC	
	C952	QCC21EM-473	0.047MF 25V CERAMIC	
	C955	QETB1CM-108	1000MF 16V ELECTRO	
	C956	QETB1CM-108	1000MF 16V ELECTRO	
	C957	QCF21HP-223	0.022MF 50V CERAMIC	
	C958	QETB1AM-476	47MF 25V ELECTRO	
	C959	QETB1AM-107	100MF 10V ELECTRO	
	C960	QETB1AM-107	100MF 10V ELECTRO	
	C963	QCC21EM-473	0.047MF 25V CERAMIC	
	C964	QCC21EM-473	0.047MF 25V CERAMIC	
	C965	QETB1CM-476	47MF 16V ELECTRO	
	C966	QETB1CM-476	47MF 16V ELECTRO	
	C987	QETB1HM-475	4.7MF 50V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R401	QRD167J-182	1.8K 1/6W CARBON	
	R402	QRD167J-821	820 1/6W CARBON	
	R403	QRD167J-682	6.8K 1/6W CARBON	
	R404	QRD167J-101	100 1/6W CARBON	
	R406	QRD167J-682	6.8K 1/6W CARBON	
	R407	QRD167J-102	1K 1/6W CARBON	
	R408	QRD167J-822	8.2K 1/6W CARBON	
	R409	QRD167J-822	8.2K 1/6W CARBON	
	R410	QRD167J-224	220K 1/6W CARBON	
	R411	QRD167J-184	180K 1/6W CARBON	
	R412	QRD167J-393	39K 1/6W CARBON	
	R413	QRD167J-182	1.8K 1/6W CARBON	
	R414	QRD167J-182	1.8K 1/6W CARBON	
	R415	QRD167J-122	1.2K 1/6W CARBON	
	R416	QRD167J-221	220 1/6W CARBON	
	R417	QRD167J-682	6.8K 1/6W CARBON	
	R418	QRD167J-471	470 1/6W CARBON	
	R419	QRD167J-102	1K 1/6W CARBON	
	R420	QRD167J-183	18K 1/6W CARBON	
	R421	QRD167J-103	10K 1/6W CARBON	
	R422	QRD167J-221	220 1/6W CARBON	
	R423	QRD167J-221	220 1/6W CARBON	
	R424	QRD167J-221	220 1/6W CARBON	
	R427	QVPA601-104A	100K VARIABLE	
	R430	QRD167J-561	560 1/6W CARBON	
	R431	QRD167J-561	560 1/6W CARBON	
	R432	QRD167J-561	560 1/6W CARBON	
	R433	QRD167J-561	560 1/6W CARBON	
	R434	QRD167J-472	4.7K 1/6W CARBON	
	R435	QRD167J-472	4.7K 1/6W CARBON	
	R436	QRD167J-472	4.7K 1/6W CARBON	
	R440	QRD167J-102	1K 1/6W CARBON	
	R501	QRD167J-563	56K 1/6W CARBON	
	R502	QRD167J-563	56K 1/6W CARBON	
	R503	QRD167J-394	390K 1/6W CARBON	
	R504	QRD167J-681	680 1/6W CARBON	
	R505	QVPA603-202M	2K VARIABLE	
	R506	QRD167J-561	560 1/6W CARBON	
	R507	QRD167J-334	330K 1/6W CARBON	
	R509	QVPA603-154A	150K VARIABLE	
	R510	QRD167J-223	22K 1/6W CARBON	
	R511	QRD167J-682	6.8K 1/6W CARBON	
	R512	QRD167J-103	10K 1/6W CARBON	
	R513	QRD167J-562	5.6K 1/6W CARBON	
	R514	QRD167J-562	5.6K 1/6W CARBON	
	R515	QRD167J-562	5.6K 1/6W CARBON	
	R516	QRD167J-562	5.6K 1/6W CARBON	
	R517	QRD167J-183	18K 1/6W CARBON	
	R519	QRD167J-103	10K 1/6W CARBON	
	R520	QRD167J-224	220K 1/6W CARBON	
	R521	QRD167J-222	2.2K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R523	QRD167J-434	430K 1/6W CARBON	
	R524	QRD167J-434	430K 1/6W CARBON	
	R525	QRD167J-103	10K 1/6W CARBON	
	R526	QRD167J-183	18K 1/6W CARBON	
	R527	QRD167J-104	100K 1/6W CARBON	
	R528	QRD167J-104	100K 1/6W CARBON	
	R529	QRD167J-681	680 1/6W CARBON	
	R530	QRD167J-183	18K 1/6W CARBON	
	R531	QRD167J-184	180K 1/6W CARBON	
	R532	QRD167J-102	1K 1/6W CARBON	
	R533	QRD167J-562	5.6K 1/6W CARBON	
	R534	QRD167J-183	18K 1/6W CARBON	
	R535	QRD167J-183	18K 1/6W CARBON	
	R537	QRD167J-470	47 1/6W CARBON	
	R538	QRD167J-562	5.6K 1/6W CARBON	
	R541	QRD167J-103	10K 1/6W CARBON	
	R551	QRD167J-104	100K 1/6W CARBON	
	R552	QRD167J-104	100K 1/6W CARBON	
	R553	QRD167J-394	390K 1/6W CARBON	
	R554	QRD167J-394	390K 1/6W CARBON	
	R557	QRD167J-681	680 1/6W CARBON	
	R558	QRD167J-473	47K 1/6W CARBON	
	R559	QRD167J-331	330 1/6W CARBON	
	R560	QRD167J-333	33K 1/6W CARBON	
	R561	QRD167J-273	27K 1/6W CARBON	
	R562	QRD167J-394	390K 1/6W CARBON	
	R563	QRD167J-182	1.8K 1/6W CARBON	
	R564	QRD167J-121	120 1/6W CARBON	
	R565	QRD167J-335	3.3M 1/6W CARBON	
	R567	QRD167J-105	1M 1/6W CARBON	
	R568	QRD167J-470	47 1/6W CARBON	
	R569	QRD167J-473	47K 1/6W CARBON	
	R570	QRD167J-272	2.7K 1/6W CARBON	
	R571	QRD167J-682	6.8K 1/6W CARBON	
	R572	QRD167J-104	100K 1/6W CARBON	
	R573	QRD167J-562	5.6K 1/6W CARBON	
	R574	QRD167J-105	1M 1/6W CARBON	
	R575	QRD167J-105	1M 1/6W CARBON	
	R576	QRD167J-104	100K 1/6W CARBON	
	R577	QRD167J-562	5.6K 1/6W CARBON	
	R579	QRD167J-104	100K 1/6W CARBON	
	R580	QRD167J-103	10K 1/6W CARBON	
	R583	QRD167J-183	18K 1/6W CARBON	
	R590	QRD167J-470	47 1/6W CARBON	
	R601	QRD167J-183	18K 1/6W CARBON	
	R602	QRD167J-432	4.3K 1/6W CARBON	
	R603	QRD167J-391	390 1/6W CARBON	
	R604	QRD167J-221	220 1/6W CARBON	
	R605	QRD167J-152	1.5K 1/6W CARBON	
	R606	QRD167J-561	560 1/6W CARBON	
	R607	QRD167J-561	560 1/6W CARBON	
	R608	QRD167J-562	5.6K 1/6W CARBON	
	R609	QRD167J-152	1.5K 1/6W CARBON	
	R610	QRD167J-271	270 1/6W CARBON	
	R611	QRD167J-222	2.2K 1/6W CARBON	
	R650	QRD167J-102	1K 1/6W CARBON	
	R651	QRD167J-103	10K 1/6W CARBON	
	R652	QRD167J-272	2.7K 1/6W CARBON	
	R656	QRD167J-391	390 1/6W CARBON	
	R657	QRD167J-103	10K 1/6W CARBON	
	R658	QRD167J-562	5.6K 1/6W CARBON	
	R659	QRD167J-472	4.7K 1/6W CARBON	
	R660	QRD167J-822	8.2K 1/6W CARBON	
	R661	QRD167J-103	10K 1/6W CARBON	
	R711	QRD167J-151	150 1/6W CARBON	
	R712	QRD167J-151	150 1/6W CARBON	
	R713	QRD167J-273	27K 1/6W CARBON	
	R714	QRD167J-273	27K 1/6W CARBON	
	R715	QRD167J-472	4.7K 1/6W CARBON	
	R716	QRD167J-472	4.7K 1/6W CARBON	
	R719	QRD167J-112	1.1K 1/6W CARBON	
	R720	QRD167J-112	1.1K 1/6W CARBON	
	R721	QRD167J-681	680 1/6W CARBON	
	R722	QRD167J-681	680 1/6W CARBON	
	R723	QRD167J-511	510 1/6W CARBON	
	R724	QRD167J-511	510 1/6W CARBON	
	R725	QRD167J-241	240 1/6W CARBON	
	R726	QRD167J-241	240 1/6W CARBON	
	R727	QRD167J-104	100K 1/6W CARBON	
	R728	QRD167J-104	100K 1/6W CARBON	
	R729	QRD167J-392	3.9K 1/6W CARBON	
	R730	QRD167J-392	3.9K 1/6W CARBON	
	R733	QRD167J-183	18K 1/6W CARBON	
	R734	QRD167J-183	18K 1/6W CARBON	
	R735	QRD167J-183	18K 1/6W CARBON	
	R736	QRD167J-183	18K 1/6W CARBON	
	R740	QRD167J-154	150K 1/6W CARBON	
	R743	QRD167J-684	680K 1/6W CARBON	
	R753	QRD167J-101	100 1/6W CARBON	
	R755	QRD167J-181	180 1/6W CARBON	
	R756	QRD167J-472	4.7K 1/6W CARBON	
	R758	QRD167J-2R2	2.2 1/6W CARBON	
	R761	QRD167J-243	24K 1/6W CARBON	
	R762	QRD167J-243	24K 1/6W CARBON	
	R765	QRD167J-243	24K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R766	QRD167J-243	24K	1/6W	CARBON	
⚠	R791	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R792	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R793	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R794	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R795	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R796	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R797	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R798	QRV144F-1802	18K	1/4W	M.FILM	
	R801	QRD167J-334	330K	1/6W	CARBON	
	R802	QRD167J-564	560K	1/6W	CARBON	
	R803	QRD167J-153	15K	1/6W	CARBON	
	R804	QRD167J-184	180K	1/6W	CARBON	
	R805	QRD167J-562	5.6K	1/6W	CARBON	
	R806	QRD167J-392	3.9K	1/6W	CARBON	
	R808	QRD167J-103	10K	1/6W	CARBON	
	R809	QRD167J-302	3K	1/6W	CARBON	
	R810	QRD167J-102	1K	1/6W	CARBON	
	R811	QRD167J-394	390K	1/6W	CARBON	
	R812	QRD167J-183	18K	1/6W	CARBON	
	R813	QRD167J-273	27K	1/6W	CARBON	
	R814	QRD167J-470	47	1/6W	CARBON	
	R822	QRD167J-221	220	1/6W	CARBON	
	R823	QRD167J-221	220	1/6W	CARBON	
	R824	QRD167J-221	220	1/6W	CARBON	
	R825	QRD167J-221	220	1/6W	CARBON	
	R841	QRD167J-243	24K	1/6W	CARBON	
	R842	QRD167J-183	18K	1/6W	CARBON	
	R843	QRD167J-203	20K	1/6W	CARBON	
	R844	QRD167J-183	18K	1/6W	CARBON	
	R845	QRD167J-820	82	1/6W	CARBON	
	R851	QRD167J-684	680K	1/6W	CARBON	
	R852	QRD167J-684	680K	1/6W	CARBON	
	R853	QRD167J-823	82K	1/6W	CARBON	
	R855	QRD167J-683	68K	1/6W	CARBON	
	R856	QRD167J-123	12K	1/6W	CARBON	
	R857	QRD167J-152	1.5K	1/6W	CARBON	
	R858	QRD167J-2R2	2.2	1/6W	CARBON	
	R859	QRD167J-470	47	1/6W	CARBON	
	R870	QRD167J-103	10K	1/6W	CARBON	
	R871	QRD167J-153	15K	1/6W	CARBON	
	R872	QRD167J-103	10K	1/6W	CARBON	
	R873	QRD167J-123	12K	1/6W	CARBON	
	R874	QRD167J-362	3.6K	1/6W	CARBON	
	R875	QRD167J-393	39K	1/6W	CARBON	
	R878	QRD167J-153	15K	1/6W	CARBON	
	R879	QRD167J-470	47	1/6W	CARBON	
	R880	QRD167J-153	15K	1/6W	CARBON	
	R881	QRD167J-393	39K	1/6W	CARBON	
	R882	QRD167J-123	12K	1/6W	CARBON	
	R883	QRD167J-153	15K	1/6W	CARBON	
	R884	QRD167J-103	10K	1/6W	CARBON	
	R885	QRD167J-470	47	1/6W	CARBON	
	R890	QRD167J-104	100K	1/6W	CARBON	
	R892	QRD167J-151	150	1/6W	CARBON	
	R901	QRD167J-821	820	1/6W	CARBON	
	R902	QRD167J-473	47K	1/6W	CARBON	
	R903	QRD167J-472	4.7K	1/6W	CARBON	
	R904	QRD167J-103	10K	1/6W	CARBON	
	R906	QRD167J-103	10K	1/6W	CARBON	
	R907	QRD167J-103	10K	1/6W	CARBON	
	R908	QRD167J-103	10K	1/6W	CARBON	
	R909	QRD167J-103	10K	1/6W	CARBON	
	R910	QRD167J-103	10K	1/6W	CARBON	
	R912	QRD167J-103	10K	1/6W	CARBON	
	R913	QRD167J-103	10K	1/6W	CARBON	
	R914	QRD167J-103	10K	1/6W	CARBON	
⚠	R951	PTH61G30BD2R2N			FUSIBLE	D
⚠	R951	PTH61G30BD2R2N			FUSIBLE	E
⚠	R952	PTH61G30BD2R2N			FUSIBLE	D
⚠	R952	PTH61G30BD2R2N			FUSIBLE	E
	R953	QRD167J-104	100K	1/6W	CARBON	
	R954	QRD167J-104	100K	1/6W	CARBON	
	R955	QRD167J-222	2.2K	1/6W	CARBON	
	R956	QRD167J-221	220	1/6W	CARBON	
⚠	R959	QRZ0077-100	10	1/4W	FUSIBLE	D
⚠	R959	QRZ0077-100	10	1/4W	FUSIBLE	E
⚠	R960	QRZ0077-100	10	1/4W	FUSIBLE	D
⚠	R960	QRZ0077-100	10	1/4W	FUSIBLE	E
	R968	QRD167J-222	2.2K	1/6W	CARBON	
	R969	QRD167J-221	220	1/6W	CARBON	
	R975	QRD167J-102	1K	1/6W	CARBON	
	R976	QRD167J-821	820	1/6W	CARBON	
	R987	QRD167J-101	100	1/6W	CARBON	
	RA901	QRB049J-473	47K	1/10W	R.NETWORK	

⚠ : SAFETY PARTS

Others

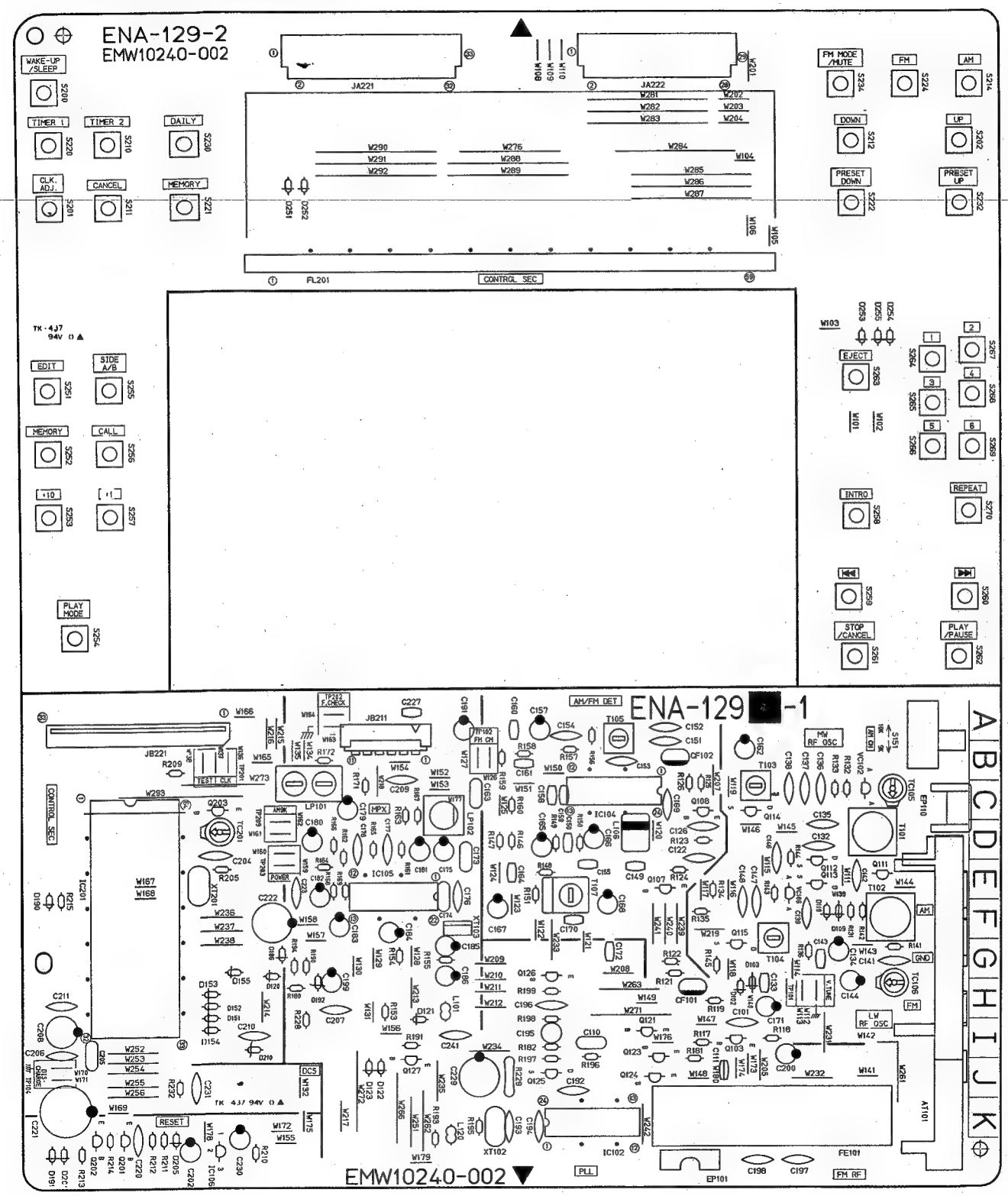
⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10236-002	CIRCUIT BOARD	
		E70225-001	EARTH PLATE	
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
	P501	EMV5109-010A	PLUG ASSY(10PIN)	
	P502	EMV5109-004A	PLUG ASSY(4PIN)	
	P901	EMV7123-029	CONNECTOR(29PIN)	
	P951	EMV7141-013M	CONNECTOR(13PIN)	
	X751	ECX0169-344EA	RESONATOR	
	X901	ECX0060-000EM	RESONATOR	
⚠	CP951	ICP-N5	I.C. PROTECTOR	D
⚠	CP951	ICP-N5	I.C. PROTECTOR	E
	FW801	EWR36B-10KST	FLAT WIRE(6PIN)	
	FW803	EWR37B-10KST	FLAT WIRE(7PIN)	
	FW831	EWR35B-10KST	FLAT WIRE(5PIN)	

⚠ : SAFETY PARTS

■ENA-129☐ Tuner PC Board Ass'y

Note : ENA-129☐ varies according to the areas employed. See note (1) when placing an order.

※ All printed circuit board assemblies are not available as service parts.



Note(1)

PC Board Ass'y	Designated Areas
ENA-129 A	the U.S.A., Canada
ENA-129 B	Universal Type
ENA-129 C	Australia
ENA-129 D	Scandinavia Continental Europe
ENA-129 E	Germany
ENA-129 F	the U.K.
ENA-129 G	Italy
ENA-129 H	Eastern Europe

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q103	2SC461(B,C)	SILICON	HITACHI	
	Q107	2SC535(B,C)	SILICON	HITACHI	
	Q108	2SC461(B,C)	SILICON	HITACHI	
	Q111	2SD2144S(VW)	SILICON	ROHM	D
	Q111	2SD2144S(VW)	SILICON	ROHM	E
	Q111	2SD2144S(VW)	SILICON	ROHM	F
	Q111	2SD2144S(VW)	SILICON	ROHM	G
	Q111	2SD2144S(VW)	SILICON	ROHM	H
	Q112	2SK301(Q,R)	F.E.T	MATSUSHITA	
	Q113	2SK301(Q,R)	F.E.T	MATSUSHITA	D
	Q113	2SK301(Q,R)	F.E.T	MATSUSHITA	E
	Q113	2SK301(Q,R)	F.E.T	MATSUSHITA	F
	Q113	2SK301(Q,R)	F.E.T	MATSUSHITA	G
	Q113	2SK301(Q,R)	F.E.T	MATSUSHITA	H
	Q114	2SK301(P,Q)	F.E.T	MATSUSHITA	D
	Q114	2SK301(P,Q)	F.E.T	MATSUSHITA	E
	Q114	2SK301(P,Q)	F.E.T	MATSUSHITA	F
	Q114	2SK301(P,Q)	F.E.T	MATSUSHITA	G
	Q114	2SK301(P,Q)	F.E.T	MATSUSHITA	H
	Q115	2SK301(P,Q)	F.E.T	MATSUSHITA	D
	Q115	2SK301(P,Q)	F.E.T	MATSUSHITA	E
	Q115	2SK301(P,Q)	F.E.T	MATSUSHITA	F
	Q115	2SK301(P,Q)	F.E.T	MATSUSHITA	G
	Q115	2SK301(P,Q)	F.E.T	MATSUSHITA	H
	Q121	DTA144ES	SILICON	ROHM	D
	Q121	DTA144ES	SILICON	ROHM	E
	Q121	DTA144ES	SILICON	ROHM	F
	Q121	DTA144ES	SILICON	ROHM	G
	Q121	DTA144ES	SILICON	ROHM	H
	Q123	DTA144ES	SILICON	ROHM	
	Q124	DTA144ES	SILICON	ROHM	
	Q125	2SK301(Q2)	F.E.T	MATSUSHITA	
	Q126	2SC458(D)	SILICON	HITACHI	
	Q127	DTC144ES	SILICON	ROHM	
	Q201	2SC1740(R,S)	SILICON	ROHM	
	Q202	DTC114YS	SILICON	ROHM	
	Q203	DTA114YS	SILICON	ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	IC102	LC7218	I.C.	SANYO	
	IC104	LA1266A	I.C.	SANYO	
	IC105	LA3401	I.C.	SANYO	
	IC106	MN1281(P,Q)	I.C.	MATSUSHITA	
	IC201	HD614089SC91	I.C.	HITACHI	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D102	1SS133	SILICON	ROHM	D
	D102	1SS133	SILICON	ROHM	E
	D102	1SS133	SILICON	ROHM	F
	D102	1SS133	SILICON	ROHM	G
	D102	1SS133	SILICON	ROHM	H
	D103	1SS133	SILICON	ROHM	D
	D103	1SS133	SILICON	ROHM	E
	D103	1SS133	SILICON	ROHM	F
	D103	1SS133	SILICON	ROHM	G
	D103	1SS133	SILICON	ROHM	H

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D106	1SS133	SILICON	ROHM	
	D109	1SS133	SILICON	ROHM	D
	D109	1SS133	SILICON	ROHM	E
	D109	1SS133	SILICON	ROHM	F
	D109	1SS133	SILICON	ROHM	G
	D109	1SS133	SILICON	ROHM	H
	D110	1SS133	SILICON	ROHM	D
	D110	1SS133	SILICON	ROHM	E
	D110	1SS133	SILICON	ROHM	F
	D110	1SS133	SILICON	ROHM	G
	D110	1SS133	SILICON	ROHM	H
	D120	1SS133	SILICON	ROHM	
	D121	1SS133	SILICON	ROHM	
	D122	1SS133	SILICON	ROHM	
	D123	1SS133	SILICON	ROHM	
	D151	1SS133	SILICON	ROHM	C
	D152	1SS133	SILICON	ROHM	A
	D152	1SS133	SILICON	ROHM	H
	D153	1SS133	SILICON	ROHM	B
	D153	1SS133	SILICON	ROHM	H
	D154	1SS133	SILICON	ROHM	A
	D154	1SS133	SILICON	ROHM	G
	D155	1SS133	SILICON	ROHM	A
	D155	1SS133	SILICON	ROHM	B
	D155	1SS133	SILICON	ROHM	C
	D190	1SS133	SILICON	ROHM	
	D191	1SS133	SILICON	ROHM	
	D192	MTZ5.1JC	ZENER	ROHM	
	D201	1SS133	SILICON	ROHM	
	D205	1SS133	SILICON	ROHM	
	D210	MTZ5.6JC	ZENER	ROHM	
	D251	1SS133	SILICON	ROHM	
	D252	1SS133	SILICON	ROHM	
	D253	1SS133	SILICON	ROHM	
	D254	1SS133	SILICON	ROHM	
	D255	1SS133	SILICON	ROHM	
	VC102	SVC342(L)	VARICAP	SANYO	
	VC106	SVC342(L)	VARICAP	SANYO	D
	VC106	SVC342(L)	VARICAP	SANYO	E
	VC106	SVC342(L)	VARICAP	SANYO	F
	VC106	SVC342(L)	VARICAP	SANYO	G
	VC106	SVC342(L)	VARICAP	SANYO	H

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C101	QCF21HP-223	0.022MF	50V	CERAMIC	
	C110	QCZ0202-155	1.5MF	25V	CERAMIC	
	C111	QCV81CM-103	0.01MF	16V	CERAMIC	H
	C122	QCF21HP-223	0.022MF	50V	CERAMIC	
	C126	QCF21HP-223	0.022MF	50V	CERAMIC	
	C132	QCS21HJ-561	560PF	50V	CERAMIC	
	C133	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C134	QETB1EM-106	10MF	25V	ELECTRO	
	C135	QCC21EM-223	0.022MF	25V	CERAMIC	
	C136	QCT26CH-180	18PF	50V	CERAMIC	
	C137	QCT26CH-221	220PF	50V	CERAMIC	
	C138	QCT26CH-241	240PF	50V	CERAMIC	
	C139	QCC21EM-223	0.022MF	25V	CERAMIC	D
	C139	QCC21EM-223	0.022MF	25V	CERAMIC	E
	C139	QCC21EM-223	0.022MF	25V	CERAMIC	F
	C139	QCC21EM-223	0.022MF	25V	CERAMIC	G
	C139	QCC21EM-223	0.022MF	25V	CERAMIC	H
	C141	QCS21HJ-270	27PF	50V	CERAMIC	D
	C141	QCS21HJ-270	27PF	50V	CERAMIC	E
	C141	QCS21HJ-270	27PF	50V	CERAMIC	F
	C141	QCS21HJ-270	27PF	50V	CERAMIC	G
	C141	QCS21HJ-270	27PF	50V	CERAMIC	H
	C142	QCY21HK-272	2700PF	50V	CERAMIC	D
	C142	QCY21HK-272	2700PF	50V	CERAMIC	E
	C142	QCY21HK-272	2700PF	50V	CERAMIC	F
	C142	QCY21HK-272	2700PF	50V	CERAMIC	G
	C142	QCY21HK-272	2700PF	50V	CERAMIC	H
	C143	QCHB1EZ-223	0.022MF	25V	CERAMIC	D
	C143	QCHB1EZ-223	0.022MF	25V	CERAMIC	E
	C143	QCHB1EZ-223	0.022MF	25V	CERAMIC	F
	C143	QCHB1EZ-223	0.022MF	25V	CERAMIC	G
	C143	QCHB1EZ-223	0.022MF	25V	CERAMIC	H
	C144	QETB1EM-106	10MF	25V	ELECTRO	D
	C144	QETB1EM-106	10MF	25V	ELECTRO	E
	C144	QETB1EM-106	10MF	25V	ELECTRO	F
	C144	QETB1EM-106	10MF	25V	ELECTRO	G
	C144	QETB1EM-106	10MF	25V	ELECTRO	H
	C146	QCT26CH-680	68PF	50V	CERAMIC	D
	C146	QCT26CH-680	68PF	50V	CERAMIC	E
	C146	QCT26CH-680	68PF	50V	CERAMIC	F

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C146	QCT26CH-680	68PF	50V	CERAMIC	G
	C146	QCT26CH-680	68PF	50V	CERAMIC	H
	C147	QCT26CH-220	22PF	50V	CERAMIC	D
	C147	QCT26CH-220	22PF	50V	CERAMIC	E
	C147	QCT26CH-220	22PF	50V	CERAMIC	F
	C147	QCT26CH-220	22PF	50V	CERAMIC	G
	C147	QCT26CH-220	22PF	50V	CERAMIC	H
	C148	QCT26CH-121	120PF	50V	CERAMIC	D
	C148	QCT26CH-121	120PF	50V	CERAMIC	E
	C148	QCT26CH-121	120PF	50V	CERAMIC	F
	C148	QCT26CH-121	120PF	50V	CERAMIC	G
	C148	QCT26CH-121	120PF	50V	CERAMIC	H
	C149	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C150	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C151	QCF21HP-223	0.022MF	50V	CERAMIC	
	C152	QCF21HP-223	0.022MF	50V	CERAMIC	
	C153	QCC21EM-223	0.022MF	25V	CERAMIC	
	C154	QCF21HP-223	0.022MF	50V	CERAMIC	
	C155	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C157	QETB1HM-474	0.47MF	50V	ELECTRO	
	C158	QCBB1HK-101	100PF	50V	CERAMIC	
	C159	QCBB1HK-101	100PF	50V	CERAMIC	
	C160	QCBB1HK-221	220PF	50V	CERAMIC	
	C161	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C162	QETB1EM-106	10MF	25V	ELECTRO	
	C163	QFLB1HJ-102	1000PF	50V	MYLAR	
	C164	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C165	QETB1HM-474	0.47MF	50V	ELECTRO	
	C166	QETB1HM-225	2.2MF	50V	ELECTRO	
	C167	QETB1HM-225	2.2MF	50V	ELECTRO	
	C168	QETB1HM-475	4.7MF	50V	ELECTRO	
	C169	QCF21HP-223	0.022MF	50V	CERAMIC	
	C170	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C171	QETB1EM-106	10MF	25V	ELECTRO	
	C172	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C173	QFLB1HJ-393	0.039MF	50V	MYLAR	A
	C173	QFLB1HJ-393	0.039MF	50V	MYLAR	B
	C173	QFLB1HJ-223	0.022MF	50V	MYLAR	C
	C173	QFLB1HJ-223	0.022MF	50V	MYLAR	D
	C173	QFLB1HJ-223	0.022MF	50V	MYLAR	E
	C173	QFLB1HJ-223	0.022MF	50V	MYLAR	F
	C173	QFLB1HJ-223	0.022MF	50V	MYLAR	G
	C173	QFLB1HJ-223	0.022MF	50V	MYLAR	H
	C174	QFLB1HJ-473	0.047MF	50V	MYLAR	
	C175	QETB1EM-106	10MF	25V	ELECTRO	
	C176	QCY21HK-102	1000PF	50V	CERAMIC	
	C177	QCS21HJ-821	820PF	50V	CERAMIC	A
	C177	QCS21HJ-821	820PF	50V	CERAMIC	B
	C177	QCS21HJ-561	560PF	50V	CERAMIC	C
	C177	QCS21HJ-561	560PF	50V	CERAMIC	D
	C177	QCS21HJ-561	560PF	50V	CERAMIC	E
	C177	QCS21HJ-821	820PF	50V	CERAMIC	F
	C177	QCS21HJ-561	560PF	50V	CERAMIC	G
	C177	QCS21HJ-561	560PF	50V	CERAMIC	H
	C178	QCS21HJ-821	820PF	50V	CERAMIC	A
	C178	QCS21HJ-821	820PF	50V	CERAMIC	B
	C178	QCS21HJ-561	560PF	50V	CERAMIC	C
	C178	QCS21HJ-561	560PF	50V	CERAMIC	D
	C178	QCS21HJ-561	560PF	50V	CERAMIC	E
	C178	QCS21HJ-821	820PF	50V	CERAMIC	F
	C178	QCS21HJ-561	560PF	50V	CERAMIC	G
	C178	QCS21HJ-561	560PF	50V	CERAMIC	H
	C179	QETB1HM-225	2.2MF	50V	ELECTRO	
	C180	QETB1HM-225	2.2MF	50V	ELECTRO	
	C181	QETB1EM-106	10MF	25V	ELECTRO	
	C182	QETB1HM-225	2.2MF	50V	ELECTRO	
	C183	QETB1HM-105	1MF	50V	ELECTRO	
	C184	QETB1HM-105	1MF	50V	ELECTRO	
	C185	QETB1HM-225	2.2MF	50V	ELECTRO	
	C186	QETB1HM-474	0.47MF	50V	ELECTRO	
	C191	QETB1HM-475	4.7MF	50V	ELECTRO	
	C192	QCC21EM-473	0.047MF	25V	CERAMIC	
	C193	QCS21HJ-180	18PF	50V	CERAMIC	
	C194	QCS21HJ-180	18PF	50V	CERAMIC	
	C195	QENB1HM-474	0.47MF	50V	NON POLE	
	C196	QCY21HK-102	1000PF	50V	CERAMIC	
	C197	QCF21HP-223	0.022MF	50V	CERAMIC	
	C198	QCF21HP-103	0.01MF	50V	CERAMIC	
	C199	QETB1HM-475	4.7MF	50V	ELECTRO	
	C200	QETB1HM-476	47MF	50V	ELECTRO	E
	C200	QETB1HM-476	47MF	50V	ELECTRO	G
	C202	QETB1HM-225	2.2MF	50V	ELECTRO	
	C204	QCT26CH-120	12PF	50V	CERAMIC	
	C205	QCZ0202-155	1.5MF	25V	CERAMIC	
	C206	QCY21HK-102	1000PF	50V	CERAMIC	
	C207	QCF21HP-223	0.022MF	50V	CERAMIC	
	C208	QETB1AM-477	470MF	10V	ELECTRO	
	C209	QCF21HP-103	0.01MF	50V	CERAMIC	
	C210	QCF21HP-103	0.01MF	50V	CERAMIC	
	C211	QCF21HP-103	0.01MF	50V	CERAMIC	
	C220	QCF21HP-103	0.01MF	50V	CERAMIC	
	C221	QEA40HZ-10AB			ELECTRO	
	C222	QETB1CM-477	470MF	16V	ELECTRO	
	C223	QCF21HP-103	0.01MF	50V	CERAMIC	
	C227	QCVB1CM-103	0.01MF	16V	CERAMIC	

⚠ :SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C229	QETB1CM-227	220MF	16V	ELECTRO	
	C230	QETB1EM-476	47MF	25V	ELECTRO	
	C231	QCF21HP-103	0.01MF	50V	CERAMIC	
	C241	QCF21HP-223	0.022MF	50V	CERAMIC	

⚠ :SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R117	QRD167J-223	22K	1/6W	CARBON	H
	R118	QRD167J-332	3.3K	1/6W	CARBON	
	R119	QRD167J-221	220	1/6W	CARBON	
	R121	QRD167J-391	390	1/6W	CARBON	
	R122	QRD167J-272	2.7K	1/6W	CARBON	
	R123	QRD167J-102	1K	1/6W	CARBON	
	R124	QRD167J-681	680	1/6W	CARBON	
	R125	QRD167J-332	3.3K	1/6W	CARBON	
	R126	QRD167J-221	220	1/6W	CARBON	
	R131	QRD167J-331	330	1/6W	CARBON	
	R132	QRD167J-103	10K	1/6W	CARBON	
	R133	QRD167J-473	47K	1/6W	CARBON	
	R134	QRD167J-103	10K	1/6W	CARBON	D
	R134	QRD167J-103	10K	1/6W	CARBON	E
	R134	QRD167J-103	10K	1/6W	CARBON	F
	R134	QRD167J-103	10K	1/6W	CARBON	G
	R134	QRD167J-103	10K	1/6W	CARBON	H
	R135	QRD167J-470	47	1/6W	CARBON	
	R136	QRD167J-103	10K	1/6W	CARBON	
	R141	QRD167J-472	4.7K	1/6W	CARBON	D
	R141	QRD167J-472	4.7K	1/6W	CARBON	E
	R141	QRD167J-472	4.7K	1/6W	CARBON	F
	R141	QRD167J-472	4.7K	1/6W	CARBON	G
	R141	QRD167J-472	4.7K	1/6W	CARBON	H
	R142	QRD167J-331	330	1/6W	CARBON	D
	R142	QRD167J-331	330	1/6W	CARBON	E
	R142	QRD167J-331	330	1/6W	CARBON	F
	R142	QRD167J-331	330	1/6W	CARBON	G
	R142	QRD167J-331	330	1/6W	CARBON	H
	R143	QRD167J-103	10K	1/6W	CARBON	D
	R143	QRD167J-103	10K	1/6W	CARBON	E
	R143	QRD167J-103	10K	1/6W	CARBON	F
	R143	QRD167J-103	10K	1/6W	CARBON	G
	R143	QRD167J-103	10K	1/6W	CARBON	H
	R144	QRD167J-473	47K	1/6W	CARBON	D
	R144	QRD167J-473	47K	1/6W	CARBON	E
	R144	QRD167J-473	47K	1/6W	CARBON	F
	R144	QRD167J-473	47K	1/6W	CARBON	G
	R144	QRD167J-473	47K	1/6W	CARBON	H
	R145	QRD167J-103	10K	1/6W	CARBON	D
	R145	QRD167J-103	10K	1/6W	CARBON	E
	R145	QRD167J-103	10K	1/6W	CARBON	F
	R145	QRD167J-103	10K	1/6W	CARBON	G
	R145	QRD167J-103	10K	1/6W	CARBON	H
	R146	QRD167J-560	56	1/6W	CARBON	
	R147	QRD167J-103	10K	1/6W	CARBON	
	R148	QRD167J-103	10K	1/6W	CARBON	
	R149	QRD167J-223	22K	1/6W	CARBON	A
	R149	QRD167J-223	22K	1/6W	CARBON	B
	R149	QRD167J-223	22K	1/6W	CARBON	C
	R149	QRD167J-223	22K	1/6W	CARBON	D
	R149	QRD167J-273	27K	1/6W	CARBON	E
	R149	QRD167J-223	22K	1/6W	CARBON	F
	R149	QRD167J-273	27K	1/6W	CARBON	G
	R149	QRD167J-153	15K	1/6W	CARBON	H
	R150	QRD167J-103	10K	1/6W	CARBON	
	R151	QRD167J-222	2.2K	1/6W	CARBON	
	R153	QRD167J-103	10K	1/6W	CARBON	
	R154	QRD167J-103	10K	1/6W	CARBON	
	R155	QRD167J-562	5.6K	1/6W	CARBON	
	R156	QRD167J-822	8.2K	1/6W	CARBON	
	R157	QRD167J-103	10K	1/6W	CARBON	
	R158	QRD167J-183	18K	1/6W	CARBON	A
	R158	QRD167J-273	27K	1/6W	CARBON	B
	R158	QRD167J-273	27K	1/6W	CARBON	C
	R158	QRD167J-273	27K	1/6W	CARBON	D
	R158	QRD167J-273	27K	1/6W	CARBON	E
	R158	QRD167J-273	27K	1/6W	CARBON	F
	R158	QRD167J-273	27K	1/6W	CARBON	G
	R158	QRD167J-273	27K	1/6W	CARBON	H
	R159	QRD167J-561	560	1/6W	CARBON	
	R160	QRD167J-562	5.6K	1/6W	CARBON	A
	R160	QRD167J-562	5.6K	1/6W	CARBON	B
	R160	QRD167J-103	10K	1/6W	CARBON	C
	R160	QRD167J-103	10K	1/6W	CARBON	D
	R160	QRD167J-103	10K	1/6W	CARBON	E
	R160	QRD167J-102	1K	1/6W	CARBON	F
	R160	QRD167J-103	10K	1/6W	CARBON	G
	R160	QRD167J-103	10K	1/6W	CARBON	H
	R161	QRD167J-823	82K	1/6W	CARBON	A
	R161	QRD167J-823	82K	1/6W	CARBON	B
	R161	QRD167J-104	100K	1/6W	CARBON	C
	R161	QRD167J-104	100K	1/6W	CARBON	D
	R161	QRD167J-104	100K	1/6W	CARBON	E
	R161	QRD167J-683	68K	1/6W	CARBON	F

⚠ :SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R161	QRD167J-104	100K 1/6W CARBON	G
	R161	QRD167J-104	100K 1/6W CARBON	H
	R162	QRD167J-823	82K 1/6W CARBON	A
	R162	QRD167J-823	82K 1/6W CARBON	B
	R162	QRD167J-104	100K 1/6W CARBON	C
	R162	QRD167J-104	100K 1/6W CARBON	D
	R162	QRD167J-104	100K 1/6W CARBON	E
	R162	QRD167J-683	68K 1/6W CARBON	F
	R162	QRD167J-104	100K 1/6W CARBON	G
	R162	QRD167J-104	100K 1/6W CARBON	H
	R163	QRD167J-472	4.7K 1/6W CARBON	A
	R163	QRD167J-472	4.7K 1/6W CARBON	B
	R163	QRD167J-332	3.3K 1/6W CARBON	C
	R163	QRD167J-332	3.3K 1/6W CARBON	D
	R163	QRD167J-332	3.3K 1/6W CARBON	E
	R163	QRD167J-332	3.3K 1/6W CARBON	F
	R163	QRD167J-332	3.3K 1/6W CARBON	G
	R163	QRD167J-332	3.3K 1/6W CARBON	H
	R164	QRD167J-472	4.7K 1/6W CARBON	A
	R164	QRD167J-472	4.7K 1/6W CARBON	B
	R164	QRD167J-332	3.3K 1/6W CARBON	C
	R164	QRD167J-332	3.3K 1/6W CARBON	D
	R164	QRD167J-332	3.3K 1/6W CARBON	E
	R164	QRD167J-332	3.3K 1/6W CARBON	F
	R164	QRD167J-332	3.3K 1/6W CARBON	G
	R164	QRD167J-332	3.3K 1/6W CARBON	H
	R165	QRD167J-184	180K 1/6W CARBON	A
	R165	QRD167J-184	180K 1/6W CARBON	B
	R165	QRD167J-274	270K 1/6W CARBON	C
	R165	QRD167J-274	270K 1/6W CARBON	D
	R165	QRD167J-274	270K 1/6W CARBON	E
	R165	QRD167J-274	270K 1/6W CARBON	F
	R165	QRD167J-274	270K 1/6W CARBON	G
	R165	QRD167J-274	270K 1/6W CARBON	H
	R166	QRD167J-184	180K 1/6W CARBON	A
	R166	QRD167J-184	180K 1/6W CARBON	B
	R166	QRD167J-274	270K 1/6W CARBON	C
	R166	QRD167J-274	270K 1/6W CARBON	D
	R166	QRD167J-274	270K 1/6W CARBON	E
	R166	QRD167J-274	270K 1/6W CARBON	F
	R166	QRD167J-274	270K 1/6W CARBON	G
	R166	QRD167J-274	270K 1/6W CARBON	H
	R167	QRD167J-393	39K 1/6W CARBON	A
	R167	QRD167J-393	39K 1/6W CARBON	B
	R167	QRD167J-473	47K 1/6W CARBON	C
	R167	QRD167J-473	47K 1/6W CARBON	D
	R167	QRD167J-473	47K 1/6W CARBON	E
	R167	QRD167J-473	47K 1/6W CARBON	F
	R167	QRD167J-473	47K 1/6W CARBON	G
	R167	QRD167J-473	47K 1/6W CARBON	H
	R168	QRD167J-103	10K 1/6W CARBON	
	R169	QRD167J-103	10K 1/6W CARBON	
	R171	QRD167J-682	6.8K 1/6W CARBON	
	R172	QRD167J-682	6.8K 1/6W CARBON	
	R180	QRD167J-103	10K 1/6W CARBON	
	R181	QRD167J-222	2.2K 1/6W CARBON	
	R182	QRD167J-181	180 1/6W CARBON	
	R190	QRD167J-103	10K 1/6W CARBON	
	R191	QRD167J-562	5.6K 1/6W CARBON	
	R193	QRD167J-103	10K 1/6W CARBON	
	R194	QRD167J-103	10K 1/6W CARBON	
	R195	QRD167J-473	47K 1/6W CARBON	
	R196	QRD167J-103	10K 1/6W CARBON	A
	R196	QRD167J-103	10K 1/6W CARBON	B
	R196	QRD167J-103	10K 1/6W CARBON	C
	R196	QRD167J-222	2.2K 1/6W CARBON	D
	R196	QRD167J-222	2.2K 1/6W CARBON	E
	R196	QRD167J-222	2.2K 1/6W CARBON	F
	R196	QRD167J-222	2.2K 1/6W CARBON	G
	R196	QRD167J-222	2.2K 1/6W CARBON	H
	R197	QRD167J-222	2.2K 1/6W CARBON	
	R198	QRD167J-332	3.3K 1/6W CARBON	A
	R198	QRD167J-332	3.3K 1/6W CARBON	B
	R198	QRD167J-332	3.3K 1/6W CARBON	C
	R198	QRD167J-822	8.2K 1/6W CARBON	D
	R198	QRD167J-822	8.2K 1/6W CARBON	E
	R198	QRD167J-822	8.2K 1/6W CARBON	F
	R198	QRD167J-822	8.2K 1/6W CARBON	G
	R198	QRD167J-822	8.2K 1/6W CARBON	H
	R199	QRD167J-472	4.7K 1/6W CARBON	
	R205	QRD167J-473	47K 1/6W CARBON	
	R209	QRD167J-104	100K 1/6W CARBON	
	R210	QRD167J-222	2.2K 1/6W CARBON	
	R211	QRD167J-103	10K 1/6W CARBON	
	R212	QRD167J-473	47K 1/6W CARBON	
	R213	QRD167J-472	4.7K 1/6W CARBON	
	R214	QRD167J-102	1K 1/6W CARBON	
	R215	QRD167J-470	47 1/6W CARBON	
	R228	QRD167J-222	2.2K 1/6W CARBON	
⚠	R229	QRD14CJ-680S	68 1/4W UNF.CARBON	A
⚠	R229	QRZ0077-680	68 1/4W FUSIBLE	B
⚠	R229	QRZ0077-680	68 1/4W FUSIBLE	C
⚠	R229	QRZ0077-680	68 1/4W FUSIBLE	D
⚠	R229	QRZ0077-680	68 1/4W FUSIBLE	E
⚠	R229	QRZ0077-680	68 1/4W FUSIBLE	F

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	R229	QRZ0077-680	68 1/4W FUSIBLE	G
⚠	R229	QRZ0077-680	68 1/4W FUSIBLE	H
	R232	QRD167J-153	15K 1/6W CARBON	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10240-002	CIRCUIT BOARD	
	L101	EQL4004-1R0	INDUCTOR	
	L106	EQL3001-102K	INDUCTOR	
	L120	EQL4004-1R0	INDUCTOR	
	S151	QSS6A12-E01	SLIDE SWITCH	B
	S200	ESP0001-023M	TACT SWITCH(WAKE-UP/SLEEP)	
	S201	ESP0001-023M	TACT SWITCH(CLOCK ADJ)	
	S202	ESP0001-023M	TACT SWITCH(UP)	
	S210	ESP0001-023M	TACT SWITCH(TIMER2)	
	S211	ESP0001-023M	TACT SWITCH(CANCEL)	
	S212	ESP0001-023M	TACT SWITCH(DOWN)	
	S214	ESP0001-023M	TACT SWITCH(AM)	
	S220	ESP0001-023M	TACT SWITCH(TIMER1)	
	S221	ESP0001-023M	TACT SWITCH(MEMORY)	
	S222	ESP0001-023M	TACT SWITCH(PRESET DOWN)	
	S224	ESP0001-023M	TACT SWITCH(FM)	
	S230	ESP0001-023M	TACT SWITCH(DAILY)	
	S232	ESP0001-023M	TACT SWITCH(PRESET UP)	
	S234	ESP0001-023M	TACT SWITCH(FM MODE/MUTE)	
	S251	ESP0001-023M	TACT SWITCH(EDIT)	
	S252	ESP0001-023M	TACT SWITCH(MEMORY)	
	S253	ESP0001-023M	TACT SWITCH(+10)	
	S254	ESP0001-023M	TACT SWITCH(P.MODE)	
	S255	ESP0001-023M	TACT SWITCH(SIDE A/B)	
	S256	ESP0001-023M	TACT SWITCH(CALL)	
	S257	ESP0001-023M	TACT SWITCH(+1)	
	S258	ESP0001-023M	TACT SWITCH(INTRO)	
	S259	ESP0001-023M	TACT SWITCH(⏮)	
	S260	ESP0001-023M	TACT SWITCH(⏭)	
	S261	ESP0001-023M	TACT SWITCH(STOP/CANCEL)	
	S262	ESP0001-023M	TACT SWITCH(PLAY/PAUSE)	
	S263	ESP0001-023M	TACT SWITCH(EJECT)	
	S264	ESP0001-023M	TACT SWITCH(1)	
	S265	ESP0001-023M	TACT SWITCH(3)	
	S266	ESP0001-023M	TACT SWITCH(5)	
	S267	ESP0001-023M	TACT SWITCH(2)	
	S268	ESP0001-023M	TACT SWITCH(4)	
	S269	ESP0001-023M	TACT SWITCH(6)	
	S270	ESP0001-023M	TACT SWITCH(REPEAT)	
	T101	EQR1111-014	AM RF COIL	
	T102	EQR1111-005	AM RF COIL	D
	T102	EQR1111-005	AM RF COIL	E
	T102	EQR1111-005	AM RF COIL	F
	T102	EQR1111-005	AM RF COIL	G
	T102	EQR1111-005	AM RF COIL	H
	T103	EQR1207-017	MW OSC COIL	
	T104	EQR1307-010	LW OSC COIL	D
	T104	EQR1307-010	LW OSC COIL	E
	T104	EQR1307-010	LW OSC COIL	F
	T104	EQR1307-010	LW OSC COIL	G
	T104	EQR1307-010	LW OSC COIL	H
	T105	EQT2140-017	I.F. TRANSFORMER	
	T107	ECB1560-010	CERAMIC FILTER	
	AT101	EMB41YV-401K	ANTENNA TERMINAL	A
	AT101	EMB41YV-401K	ANTENNA TERMINAL	B
	AT101	EMB41YV-401K	ANTENNA TERMINAL	C
	AT101	EMB41YV-301K	ANTENNA TERMINAL	D
	AT101	EMB41YV-301K	ANTENNA TERMINAL	E
	AT101	EMB41YV-301K	ANTENNA TERMINAL	F
	AT101	EMB41YV-301K	ANTENNA TERMINAL	G
	AT101	EMB41YV-301K	ANTENNA TERMINAL	H
	CF101	ECB2123-006R	CERAMIC FILTER	A
	CF101	ECB2123-006R	CERAMIC FILTER	B
	CF101	ECB2123-006R	CERAMIC FILTER	C
	CF101	ECB2118-007R	CERAMIC FILTER	D
	CF101	ECB2118-007R	CERAMIC FILTER	E
	CF101	ECB2118-007R	CERAMIC FILTER	F
	CF101	ECB2118-007R	CERAMIC FILTER	G
	CF101	ECB2118-007R	CERAMIC FILTER	H
	CF102	ECB2123-006R	CERAMIC FILTER	A
	CF102	ECB2123-006R	CERAMIC FILTER	B
	CF102	ECB2123-006R	CERAMIC FILTER	C
	CF102	ECB2118-007R	CERAMIC FILTER	D
	CF102	ECB2118-007R	CERAMIC FILTER	E
	CF102	ECB2118-007R	CERAMIC FILTER	F
	CF102	ECB2118-007R	CERAMIC FILTER	G
	CF102	ECB2118-007R	CERAMIC FILTER	H
	EP101	E70859-001	EARTH PLATE	
	EP110	E70225-001	EARTH PLATE	
	FE101	EAF2203-001	FRONT END	A

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	FE101	EAF2203-001	FRONT END	B
	FE101	EAF2203-001	FRONT END	C
	FE101	EAF2203-001	FRONT END	D
	FE101	EAF2203-003	FRONT END	E
	FE101	EAF2203-001	FRONT END	F
	FE101	EAF2203-003	FRONT END	G
	FE101	EAF2302-001	FRONT END	H
	FH201	E307978-001	FL HOLDER	
	FL201	ELU0001-135	FL TUBE	
	FS201	E306805-014	FELT SPACER	
	JA221	EMV7123-033R	CONNECTOR(33PIN)	
	JA222	EMV7123-029R	CONNECTOR(29PIN)	
	JB211	EMV7141-011	CONNECTOR(11PIN)	
	JB221	EMV7123-033	CONNECTOR(33PIN)	
	LP101	EQF0101-002	LOW PASS FILTER	
	LP102	EQF0102-001	LOW PASS FILTER	E
	LP102	EQF0102-001	LOW PASS FILTER	G
	TC105	ENZ1003-006	TRIMMER	
	TC106	ENZ1003-006	TRIMMER	D
	TC106	ENZ1003-006	TRIMMER	E
	TC106	ENZ1003-006	TRIMMER	F
	TC106	ENZ1003-006	TRIMMER	G
	TC106	ENZ1003-006	TRIMMER	H
	TC201	ENZ1003-015	TRIMMER	
	XT102	ECX0007-200KC	RESONATOR	
	XT103	ECX0000-456KR	RESONATOR	
	XT201	ECX4194-304CF	RESONATOR	

⚠ : SAFETY PARTS

Block Diagram
(Tuner Section)